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IN THE ALLEGHENIES.
HAND BOOK
OF
WEST
VIRGINIA
THE FARMS
ORCHARDS &
GARDENS
THE FORESTS
MINES AND
FACTORIES
SCENE ON THE GREAT KANAWHA RIVER

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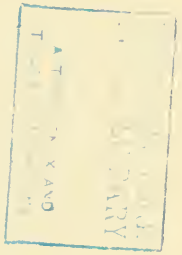

STATE CAPITOL BUILDING—Charleston, West Virginia—(See p. 61.)
(Completed in 1885, the total cost being $389,923.88.)

WEST VIRGINIA.

Its History, Natural Resources, Industrial Enterprises and Institutions

—TREATING OF—

The Geographical Location, Topography, Geology, Climatology, Discovery and Exploration, Occupation and Settlement, Population, Natural Resources, Transportation, Forests, Agriculture, Horticulture, Manufacturing Industries and Advantages, Commercial Facilities, Educational Interests, Government, and the Excellence of the Social and Moral Life of

The People of the State

Whose Boundless Resources are now Known to the World.

—COMPILED BY—

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Prepared and Published Under the Direction of the

WEST VIRGINIA COMMISSION OF THE LOUISIANA PURCHASE EXPOSITION.

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INTRODUCTION.

It is of West Virginia we write. Our task is to set forth its geographical position, topographical features, boundless natural resources, geology, climate, soils, discovery and exploration, occupation and settlement, population, vast extent of forest, agricultural productions, horticultural advantages, transportation, commercial opportunities, industrial enterprise, material development, educational facilities, liberal government, charitable institutions, and the excellence of the intellectual, moral, and social life of its people. The subject is one of great breadth and depth, yet inviting; the duty is a pleasant one, yet, in many respects, it is difficult of accomplishment. The artist who would attempt to present with his brush the grandeur of hue and the majestic form of the bow of promise, would find the task to lie beyond the reach of his culture or the grasp of his endowments. So, the pen is wholly inadequate to present in its bright and winsome reality this realm of topographical and sylvan beauty, rich resources, gracious climate, fields, orchards, rivers, valleys, hills, mountains, and splendid development, which all the world has now learned to know as the State of West Virginia.

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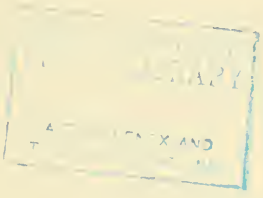


A CANON WALL ON NEW RIVER—Fayette County—(See p. 6).

HAND-BOOK OF WEST VIRGINIA

PART ONE

WEST VIRGINIA

ITS GEOGRAPHY, TOPOGRAPHY, HISTORY, GOVERNMENT, PEOPLE AND INSTITUTIONS, EDUCATION AND LITERATURE.

LOCATION.

Prior to the year 1863, the territory now embraced within the limits of West Virginia was a part of Virginia. With the exception of two counties—Jefferson and Berkeley—in the Valley Region, and six others—Morgan, Hampshire, Mineral, Hardy, Grant, and Pendleton—in the Mountain Region, the whole of the State lies in the Trans-Allegheny Region, that is west of the Allegheny mountains, and is drained by westward flowing streams. Thus it is largely on the western slope of the Appalachian Mountain System. Including the two Valley and the six Mountain counties named above, the State is situated between 37° 6′ and 40° 38′ north latitude, and between 0° 40′ and 5° 55′ longitude west from Washington, or 77° 40′ and 82° 55′ from Greenwich. It is territorially bounded on the north by Ohio, Pennsylvania and Maryland; on the east by Pennsylvania, Maryland and Virginia; on the south by Virginia and Kentucky; and on the west by Kentucky and Ohio.

DESCRIPTION AND BOUNDARY.

West Virginia is the most irregular in shape of all the states of the American Union. No legal description of its boundary line has ever been

prepared, but it may be given thus: Beginning at a point on the summit of the Blue Ridge one-half mile east of Harper's Ferry, where the Potomac breaks through that mountain barrier; thence with the said river Potomac to the mouth of the South Branch thereof; thence with the meanderings of the North Branch to its source or first fountain; thence with the meridian passing through said first fountain due north with the western boundary of Maryland, to the southern boundary line of Pennsylvania; thence due west to the southern corner of that state; thence due north with the western boundary line of Pennsylvania to the low water-mark on the north bank of the Ohio river; thence with the said low water-mark along the northwest bank of that river to the mouth of Big Sandy river; thence with the last named river and Tug Fork thereof, to Wharncliffe, a corner of Virginia and Kentucky, one-half mile from the mouth of Knox creek; thence with the line of and including the counties of McDowell and Mercer, along the crest of Dividing Ridge, Big Stone Ridge, and southeasterly across the Blue Stone valley to East River mountain, and thence with the crest thereof to New River; thence with the crest of Peter's mountain around the source of Big Stony Creek to Pott's mountain; thence with the crest of the same and southwesterly across the valley of Dunlap's creek to the Allegheny mountains; thence with the summit of the same to Haystack Knob, a corner of Virginia on the line of Pocahontas county, at the source of the Cheat, Greenbrier, and South Branch rivers; thence southeasterly with the southern line of Pendleton county, across the North Fork mountain and Jackson mountain to the summit of the Shenandoah mountain; thence with said mountain to the source of Lost river; thence southeasterly to Great North mountain; thence with its crest and Cacapon mountain to a corner of Virginia on the southern line of Morgan county, and thence southeasterly with the line of and including the counties of Morgan, Berkeley, and Jefferson, across the Shenandoah Valley to the summit of the Blue Ridge; and thence with the crest thereof northerly to the place of beginning.

Thus it is seen that the extreme eastern boundary is, for dozen miles the crest of the far-famed Blue Ridge. Harper's Ferry, the most eastern town in the State is but sixty miles from Washington City, and the same distance from tide-water in the Potomac. The two most eastern counties—Berkeley and Jefferson—stretch across the Lower Shenandoah Valley, one of the garden spots of the world, and they with six others—Morgan, Hampshire, Mineral, Grant, Hardy and Pendleton—are drained by the Potomac into Chesapeake bay. Mountain ridges of the Alleghenies stretch across the State from Kentucky to Maryland, and among them rise streams that

flow into the Ohio which forms the western boundary of the State for two hundred and fifty-six miles and then runs away and, by way of the Mississippi, discharges its waters into the Gulf of Mexico. The western extremity of the State—Virginia Point, on which the town of Kenova now stands—is but one hundred and fifty-one miles above Cincinnati. Hancock, its most northern county, stretches away beyond Pittsburg, and Point Marion, where the northern State line crosses the Monongahela river, is but ninety miles from that city. The three counties,—Morgan, Berkeley and Jefferson—which stretch away across the Shenandoah Valley, form what is called the Eastern Pan-Handle in which there are 856 square miles, or 547,840 acres; while the four counties—Marshall, Ohio, Brooke and Hancock—which extend northward between the western Pennsylvania line and the Ohio river, are known as the Northern Pan-Handle, with an area of 540 square miles, or 345,600 acres. Thus it is that West Virginia is often called the "Pan-Handle State."

EXTENT AND AREA OF THE STATE.

The total area of the State is 24,715 square miles; of this, 24,580 square miles or 15,731,200 acres, are land consisting of valley, hill, tableland and mountain; and 135 square miles, water surface. This area is almost twenty times that of Rhode Island; twelve times that of Delaware; five times that of Connecticut; three times that of Massachusetts; more than twice that of Maryland; twice that of Belgium; twice that of Holland; a third larger than Denmark; and more than a third larger than Switzerland. The longest straight line that can be drawn across the State from a point on the Blue Ridge, one-half mile east of Harper's Ferry, to Virginia Point, at the mouth of Big Sandy river,—say between the two towns of Harper's Ferry, in Jefferson county, and Kenova, in Wayne county,—will measure 274 miles. The longest line that can be drawn through the State from north to south, if extended from the northern limit of Hancock county to a point on Dividing Ridge on the southern border of McDowell county, will measure 245 miles. Such is West Virginia, which, in the days of geographical ignorance, as persons yet living can remember, was referred to in the text-books of the "Little Mountain State."

TOPOGRAPHY—RELIEF FORMS—PHYSICAL REGIONS.

West Virginia embraces four distinct Physical Regions, or Sections. These are (1) the Ohio Valley Section; (2) the Cumberland Plateau; (3) the Allegheny Highland; (4) the Potomac Section. The first, second

and third of these sections may be best conceived by picturing, to the mind's eye, the surface of the State as a vast declivity, or inclined plane, sloping down to the northwest from the crest of the Alleghenies, which here attain an altitude of nearly 5,000 feet, to the Ohio river. Let three straight lines be thus extended: The first from the summit of the Allengheny mountains on the eastern boundary of Pocahontas county, to the mouth of the Little Kanawha river; another from the crest of Pott's mountain, on the eastern margin of Monroe county, to the mouth of the Great Kanawha river; and a third from the top of East River mountain on the eastern border of Mercer county, to the mouth of the Big Sandy river. These lines will all be about the same length, say 150 miles. If we follow these eastward from the Ohio river, we shall ascend a slope which may be divided into three widely extended benches or terraces—if these terms may be allowed. The first of these is distinguished as a low-land region, or the Ohio Valley Section; the second is a sub-mountain high-land, distinguished as a middle region, or the Cumberland Plateau; the third as a mountain region, or plateau, and known as the Allegheny Highland. These may be considered in the order named:

I. THE OHIO VALLEY SECTION.

This region stretches entirely along the northwestern part of the State from and including the Northern Pan-Handle to the Big Sandy river; it has for its northwest boundary the Ohio river; for its eastern boundary, an imaginary line extending irregularly across the State where the mean altitude is 1,000 feet, that is, plateau elevation. Within its boundaries lie the counties of Hancock, Brooke, Ohio, Marshall, Wetzel, Tyler, Pleasants, Wood, Jackson, Mason, Cabell, Wayne, Lincoln, Putnam, Roane, Calhoun, Wirt, Ritchie and Doddridge, with portions of Monongalia, Marion, Harrison, Gilmer, Braxton, Clay, Kanawha, Boone, Mingo and McDowell; the total area of the Section being about 8,326 square miles, or 5,327,640 acres. It is here we observe that the streams flow down, or rather out to the Ohio, through a succession of hills and valleys. Indeed, the Ohio Valley Section is a region of hills and nowhere in it are they ever out of sight, for they occupy by far the greater part of its surface. It has been estimated that alluvial or bottom lands occupy thirty per cent of the area of the State, but the proportion is much greater in this Section. Along the east side of the Ohio for a distance of two hundred and fifty-six miles, there are widely extended bottom lands alternating with but few narrows; while in the valleys of the Big Sandy, Guyandotte, Great

MOUNTAIN FOLDS ON THE ALLEGHENY HIGHLAND—Pendleton County— (See p. 9).

Kanawha, Little Kanawha and Monongahela, fifty or sixty per cent. of the average width of the valleys proper is bottom land. On the streams next in importance, the proportion varies from ten to thirty and even forty per cent., while toward the source of these and tributary streams, the bottom is often confined to a few yards in width, with lower summits and more gentle slopes of the hills by way of compensation. As a rule, the width of the valley is proportioned to the size of the stream, yet there are numerous exceptions; narrow valleys being found for miles at a stretch along good sized rivers, while many smaller creeks afford, here and there, quite extensive bottoms. Much depends in this respect upon the nature of the strata in the adjoining and adjacent hills; soft materials being more easily disintegrated and broken up, furnish both room and substance for wider valleys, and more gentle slopes. An experienced eye will, therefore, readily judge of the nature of the soil by the slope of the hills. Here, too, the streams have their lower course and, as they approach the Ohio, they move on sluggishly until they mingle their waters with it.

Much depends upon the altitude of a country; its temperature, moisture, and vegetable life, are all modified by it. Hence, the character of a region is best understood from its elevation above sea-level, and the following figures will be of interest. The lowest depression in this Section is at the mouth of Big Sandy river, where the altitude is 550 feet; that of the mouth of the Great Kanawha river is 565 feet; of Winfield, in Putnam county, 583 feet; Ripley, Jackson county, 599 feet; Charleston, Kanawha county, 603 feet; Parkersburg, Wood county, 624 feet; Wheeling, Ohio county, 647 feet; Sistersville, Tyler county, 650 feet; Grantsville, Calhoun county, 657 feet; Kanawha Falls, Fayette county, 659 feet; Spencer, Roane county, 710 feet; West Union, Doddridge county, 809 feet; Morgantown, Monongalia county, 816 feet; Sutton, Braxton county, 842 feet; Bethany, Brooke county, 931 feet; Mannington, Marion county, 969 feet; Grafton, Taylor county, 1,000 feet, and Dingess, Mingo county, 1,001 feet.

We have said that the Ohio Valley Section is a region of hills, and such it is, for everywhere over its whole extent they rise above the elevations given, to a height of from two to five hundred feet, the highest points being Bald Knob, in Boone county, 1,101 feet; Mann Knob, Wayne county, 1,437 feet; Powell Knob, Gilmer county, 1,460 feet; Bragg Knob, Clay county, 1,674 feet; and High Knob in Braxton county, 1,720 feet.

Within this Section are the cities of Wheeling, Grafton, Parkersburg, Charleston and Huntington, and in it more than half a million of the State's people have their homes.

II. THE CUMBERLAND PLATEAU.

This section is so called because it is a northeast continuation of the table-land on which stand the Cumberland mountains. It stretches entirely across West Virginia from Kentucky to Pennsylvania, and has a plateau elevation of from one to two thousand feet. Its northwestern boundary is the border of the last named Section, and its southeastern boundary an irregular imaginary line extending across the State where the mean elevation is 2,000 feet. It includes the counties of Preston, Taylor, Barbour, Upshur, Lewis, Nicholas and Fayette, with parts of Wyoming, Mingo, Logan, Kanawha, Gilmer, Harrison, Braxton, Boone, Raleigh, Summers, and Webster, and has an area of 6,700 square miles, or 4,290,000 acres. Entering upon this from the Ohio Valley Section, we observe a more rapid current in the rivers, and, as we advance, we meet with falls such as those of Coal river, the Great Kanawha, and Tygart's Valley river, and with rapids like the "Roughs of Tug" and others, all of which indicate that the waters are now leaping from the plateau, or table-land elevation to their lower courses in the Ohio Valley Section. Here, too, the hills have gained in height until they stand from five hundred to one thousand feet above the rivers, and the valleys assume the canon features while the sharp, broken sides of the hills indicate a plateau elevation, through which for ages, the rivers have been cutting their deep and narrow channels far down into the Plateau. Along these they rush with impetuous velocity in their efforts to plunge from the rocky base down which they have cut their way. They here sweep on with resistless force due to the rapid descent which is often several feet to the mile. At the mouth of Greenbrier river, the elevation is 1,372 feet; at Kanawha Falls, but 669 feet,—a difference of 703 feet. The distance between these two points is but sixty miles, and down this descent the New river plunges with an average fall of eleven and two-thirds feet to the mile. Again, the town of Elkins has an elevation of 1,920 feet; that of Grafton is 1,000 feet,—a difference in altitude of 920 feet and the distance but fifty-eight miles. Down this inclined plane the Tygart's Valley river sweeps along with an average descent of sixteen feet to the mile. Another striking example of the velocity with which rivers cross this Plateau is to be seen in that of Tug River and its principal tributary—the Elkhorn. At Ennis, on the latter, the elevation is 1,995 feet; at Iaeger, on the former, it is but 978 feet,—a difference in altitude of 1,017 feet. The distance between these places is but forty miles, over which the waters dash with an average descent of twenty-five feet to the mile. In a few instances, on the

eastern edge of the Plateau, the waters gather in wide, deep basins, as if to rest and gain strength for the frightful ordeal before them. Noted examples of this may be seen in the Tygart's Valley river at Philippi, and in the New River just above Hinton. But here, there, and everywhere, the streams move onward, some between vast masses of sand-stone which rise above the water-level, often from 600 to 1,000 feet. These cliffs and precipices enclose the rivers with precipitous walls which rise almost perpendicularly from the water's edge, leaving only in rare instances, narrow bottoms or low-lands. Here, too, the beds of the streams which they have been cutting out for ages, are made rugged and blocked with huge masses of stone which, in the remote past, have tumbled from the rocky cliffs above, and are now to be ground and worn away by the motion of the swirling waters. To the dweller of the low-lands, not familiar with plateau topography, a broken region like this, especially when viewed from a railroad train as it dashes past the gorges of Tygart's Valley river, around the sharp curves of the Cheat, through the defiles of the Tug, and along under the canon walls of New River, the scene appears like an irregular labyrinthical net-work of hill, dale, mountain and valley. Yet, nothing becomes more simple to the understanding than the Plateau Section, when enquiry is directed to the origin of things. This is eminently true. For, if the traveller could alight from his train and be transferred to the summit of some towering cliff that forms part of a canon wall—say along the New River—he would be delighted with the prospect spread out before him:—a vast expanse, a panorama of table-land and forest-covered hills with here and there the low rim of a mountain ridge rising in dim outline far away. Perhaps, the most characteristic and, therefore, the best view of this plateau scenery which he could obtain is from Fayetteville, in Fayette county. In addition, he would, from a nearby point of view, behold the canon formations of New River, which Governor Wise of Virginia said was called *"New,* because it is a novelty in nature."

From the Allegheny System, northwestern spurs, with mountain elevation, extend out over this Plateau. Among these are Dividing Ridge, in McDowell county; Micajah's Ridge, Huff's mountain, Milam Ridge (2,000 feet), and Guyandotte mountains in Wyoming county; Spruce Fork Ridge, in Logan county; Pond mountains and Coal River mountains in Boone and Raleigh counties; Mitchell Ridge in Raleigh county, (3,000 feet); Muddy Creek mountains in Summers county; Big Sewell mountains, Gauley mountains, Cotton mountain, and Dogwood Ridge, in Fayette county; Powell mountains in Nicholas county; William's River mountains, Back Fork

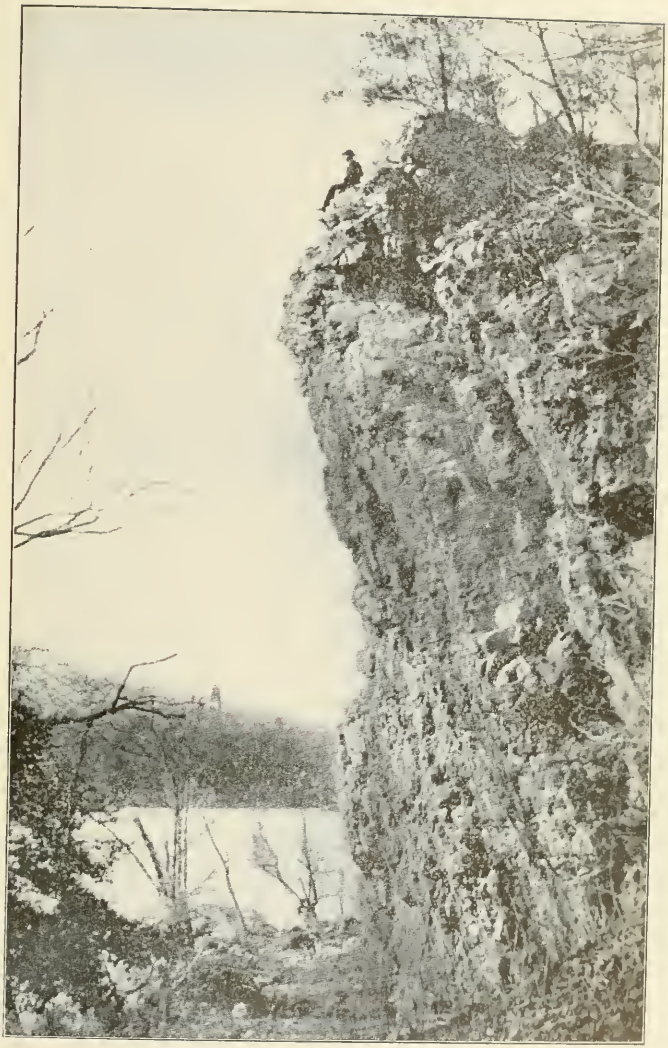
mountains, Elm mountains, and Elk mountain in Webster county; and Brier mountains and Laurel Hill in Preston county. These, with numerous others, are the secondary ranges of the State and all rise from one thousand to two thousand five hundred feet above sea-level.

Let us now observe the altitude of some of the towns that stand upon this Plateau; Dingess, in Mingo county, has an elevation of 1,001 feet; Clarksburg, Harrison county, 1,007 feet; Weston, Lewis county, 1,017 feet; Glover's Gap, Marion county, 1,039 feet; Carnifex Ferry, Nicholas county, 1,208 feet; Pineville, Wyoming county, 1,275 feet; Welch, McDowell county, 1,297 feet; Buckhannon, Upshur county, 1,401 feet; Ronceverte, Greenbrier county, 1,663 feet; McDonald, Fayette county, 1,678 feet; Belington, Barbour county, 1,697 feet; Tunnelton, Preston county, 1,825 feet; Elkhorn, McDowell county, 1,882 feet; Hardwood, Webster county, 1,912 feet; Montrose, Randolph county, 1,919 feet. It should be remembered that these elevations are railroad levels and that hills and mountains on every hand stand high above them.

On this Plateau, the soil is generally representative of the rocks prevailing upon it, but with a strong admixture of the slates from the mountain region above—that is on the mountain slopes brought down by the gradual slips and the wash of the rains and snows through ages past—and accumulated to a great extent before the present forests grew upon it. Ascending to the higher parts, that is to the eastern part of this Plateau, the soil is found to be less mixed in substance, and the timber less varied. When the top of the mountain ridge is sharp and narrow, the bare rock is found within a few inches, or feet at most, below, and often protruding above the surface; but when flat, or but gently inclined, as is usually the case, we find a deep arable soil heavily coated with humus and producing with few exceptions, the identical timber and crops of the Ohio Valley Section below. Many of the most comfortable homesteads—yea of luxury—and surrounded by orchards, gardens, and meadows, and supplied with crystal waters from never failing springs, are found here upon the tops of the hills. Here, too, on this Plateau, reside more than 230,000 of the people of the State.

III. THE ALLEGHENY HIGHLAND.

As we journey toward the southeast,—the eastern margin of the Plateau,—the topography of which we have been examining, is passed and another change takes place. We have reached the mountain region, or Allegheny Highland, so called from its predominant mountain range. On it lie



HANGING ROCKS, SOUTH BRANCH OF THE POTOMAC—Hampshire County—
(See p. 14).

the counties of Hardy, Grant, Pendleton, Randolph, Tucker, Pocahontas, Greenbrier, Monroe, and Mercer, with portions of McDowell, Wyoming, Summers, Fayette, Webster, Raleigh and Preston. Here we observe that the general plane of the country is gratly lowrd. The canon features, with their towering precipices and rushing waters have all been left behind; and we now behold for the first time, the long symmetrical, parrellel folds of the Allegheny mountains. Now the entire topography of the country is changed and everything around presents a mountainous aspect. The crests have a general northeast and southwest trend, and the escarpments, so common on the Cumberland Plateau, are no longer seen here. It is true that the strata are broken, flexed and tilted at almost every angle from the horizontal to the perpendicular, but the rough-hewn mountain walls with their lofty heights have disappeared, and the crests are less sharp and the slopes not so abrupt. Stretching away from the northeast is the lofty Allegheny crest, which with its southwest continuation—Pott's mountain and East River mountain—forms the dividing ridge between the two Virginias. Among its parallel and outlying ranges are the New Creek mountains in Grant county; South Branch mountains (3,000 feet), Short mountains, Mill Creek mountains and Patterson's Creek mountains in Hampshire county; South Fork mountains, and Jackson mountains in Pendleton county; Canaan mountains and Laurel mountains in Tucker county; Cheat mountains, Shaver's mountains, and Dry Fork mountains in Randolph county; Brier Knobs, Droop mountain, Cranberry mountains, Black mountains, Elk mountains, Brown mountains and Beaver mountains in Pocahontas county; Meadow mountains, Clear Creek mountains, Yew Pine mountains, and Brier mountains in Greenbrier county; Black Oak mountains and Stony Ridge mountains (2,600 feet), in Mercer county; Flat-Top mountains between Mercer and Raleigh counties (3,500 feet); Wolf Creek mountains and Swopes Knob (3,000 feet) in Monroe county. Other lofty elevations are Keeney's Knob in Summers county, 3,955 feet; Cold Knob in Greenbrier county, 4,318 feet; High Knob in Randolph county, 4,710 feet; Spruce Knob, in Pocahontas county, 4,730 feet; and Spruce Knob in Pendleton county, 4,780 feet.

Among the towns in this Section are Stroud's Ferry, in Nicholas county, with an elevation of 2,009 feet; Camden-on-Gauley, in Webster county, 2,018 feet; Tuckahoe, Greenbrier county, 2,035 feet; Coaldale, McDowell county, 2,336 feet; Terra Alta, Preston county, 2,550 feet; Horton, Randolph county, 2,729 feet; Fairfax, Grant county, 3,060 feet; and Stony Creek Station, Pocahontas county, 3,223 feet.

Stretching along the Allenghenian Back-Bone are the crests which separate the eastward from the westward flowing waters, for it is here in this mountain fastness that the lofty peaks tower in solemn grandeur, like grim sentinels guarding the spot where the mythical water-god separates the crystal waters and makes them flow, on the one side into the Chesapeake, and on the other into the Ohio.

The best views of these mountain elevations are to be had from the little plateaus or mountain meadows, known as Mingo Flats, in Randolph county; Little Levels, in Pocahontas county; Big Levels, in Greenbrier county; Pickaway Plains in Monroe county; and Princeton Flats, in Mercer county. All of these are little mountain-walled prairies and as the beholder looks up from one of them, he sees the summits, crests and peaks that fret the sky on every hand. Here he may study nature on a grand scale for the scene before him is one of wondrous beauty, magnificence and grandeur and one, than which no other can inspire the mind with so impressive an idea of the power of that Almighty Being who, "weighed the mountains in scales and the hills in a balance."

IV. THE POTOMAC SECTION.

The eastern part of the State—that portion to the eastward of the Alleghenies—is known as the Potomac Section. Lying in it are the counties of Jefferson, Berkeley, Morgan, Hampshire and Mineral—five in all. Here the Lower Shenandoah Valley presents views of greater beauty with less of wildness and grandeur than that of the Mountain Region. For more than a hundred and thirty miles between the mouth of Savage river and the Blue Ridge, the Potomac, "a flashing thread of silver" runs out a meandering boundary between Maryland and West Virginia. There, too, in season, the neighboring meadows, waving wheat fields, golden-fruited orchards and wild forests make graceful pictures of rural realities and possibilities, that touch the heart while they delight the eye. There, too, is Harper's Ferry, where, long ago, the surging waters which once covered the now fertile Shenandoah Valley, broke over the eastern rim—the Blue Ridge—and there for a thousand years foamed, dashed and roared, a raging Niagara, until the gray quartz wall was cut away and the chasm formed through which the Potomac now dashes along. It is a region of wonderful fertility; fully eighty per cent. of the area of the counties of Berkeley and Jefferson is level or rolling land, while wide bottoms stretch away along the banks of the South Branch and Cacapon rivers, and lie in the New Creek and Patterson's Creek valleys. At Harper's Ferry the elevation is

but 280 feet above tide water and here is the lowest depression in West Virginia. That of Shenandoah Junction, in Jefferson county, is 536 feet; of Martinsburg in Berkeley county, 445 feet; of Paw Paw in Morgan county, 530 feet; of Green Spring in Hampshire county, 550 feet; of Keyser in Mineral county, 805 feet; and of Piedmont in the same county, 910 feet. The altitude of Loudon Heights in Jefferson county is 1,000 feet; and of Sleepy Creek mountains between Berkeley and Morgan counties 1,500 feet.

The total area of the Potomac Section is 1,780 square miles, or 1,139,200 acres. Here, within it, reside full 70,000 of the State's population, and among them is to be found much of the best home life of West Virginia.

OBSERVATIONS.

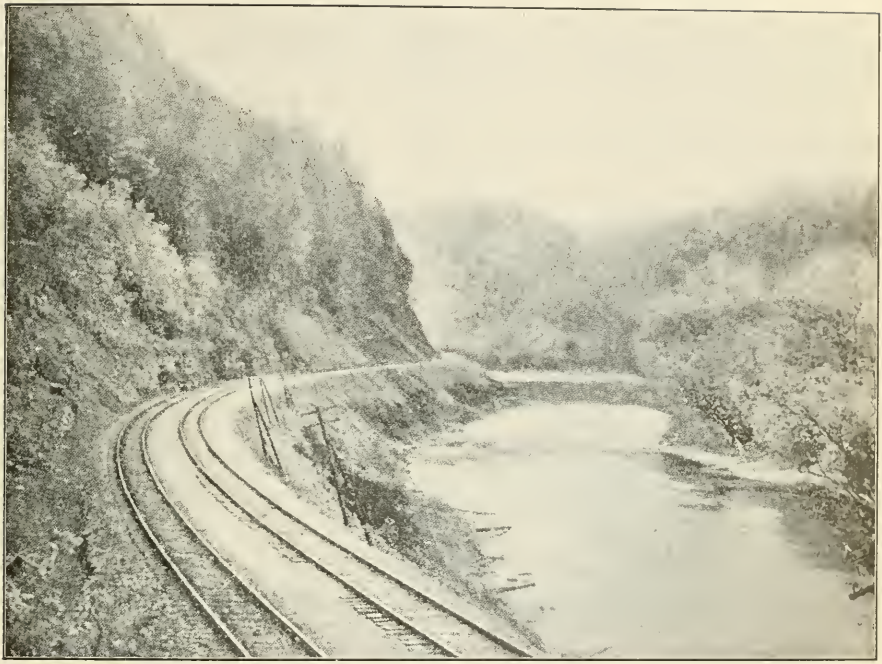
Such are the relief forms—the physical regions—of West Virginia. Everywhere, from the Ohio to the Potomac and to the crest of the Alleghenies, it is one broad expanse of scenic beauty. Whether amid the ever changing scenes of hill and valley, or where the towering mountains kiss the sky, there is beauty, grandeur and sublimity on every side. Henry Howe, the historian and author of "Virginia: Its History and Antiquities," traversed what is now West Virginia more than sixty years ago. It was before the era of railroads and he rode horseback from county to county. Here he beheld the magnificent scenery on every hand and wrote of an ideal journey through it as follows: "Now, mount your nag and be off! As you descend the mountain path faintly discerned before you, and breathe the pure, fresh air of the hills, cast your eye on the most impressive scenes, for Nature is there in all her glory. Far down in the valley to the right winds a lovely stream; there hid by the foliage over-arching its bright waters—anon it appears in a clearing again—concealed by a sweep of the mountain you are descending—still beyond it seems diminished to a silvery thread. To the right and front is a huge mountain in luxuriant verdure, at places curving far into the plain and at those points and at the summits, bathed in a sea of golden light; at others receding, thrown into dark, somber, forbidding shades. Beyond are mountains piled on mountains like an uptossed sea of ridges, until they melt away in the distance and imagination fancies others still farther on. High over all the blue ether, float yon clouds of snowy white, and far above them, in majestic flight, sails the bird of the mountain, with an air as wild, as free as the spirit of liberty. How everything is rejoicing all around! Innumerable songsters are warbling sweet

music; those wild flowers, with scarce the morning dew from off their tips, are opening their bright cheeks to the sun; and even the tiny insects, flitting through the air, join in the universal hallelujah! Now fast losing the scene, you are entering the dark, solemn forest, densely matted above with vines almost excluding the light of day. You are soon at the base of the mountain, and, from the copse before you, out starts a deer! The graceful animal pricks up its ears, distends its nostrils in fear, and, gathering its slender limbs ready for a spring, bounds away, over hillocks and through ravines and is seen no more. The stream, broad and shallow, is winding itself across your way with gentle murmurings—splash! splash! go your horses feet into the water; forty times in ten miles does it cross your road, and in various places for many hundred yards your course is directly through it."

J. R. Dodge who wrote so entertainingly of the State just after its formation, says:

"The scenery of West Virginia is worthy of a volume, rather than a fragment of a chapter. Under the influence of so genial a climate that semi-tropical forms of vegetation are almost native of its soil, its flora may safely be presumed to equal, if not to surpass, in variety and magnificance, the wealth of any other State or continent. In its fauna, it is equally distinguished. Birds, beautiful in plumage and sweet in song, give life and grace and cheerfulness to field and forest. The surface is infinite variety; rills meet rivulets and rivulets swell into rivers which leap their mountain barriers and quietly subside into the placidity of the plains below. Mountains rise like little Alps on Alps; glades—those meadows of the mountains—freshen the summer atmosphere with delicious coldness; cultivated slopes, as in Greenbrier and other of the colder counties, move the imagination as by a wand of enchantment; deep, winding, fertile valleys lie at the foot of beetling bluffs, full of the fatness of fertility. Everywhere the vision is greeted with variety and beauty. Nature has not only been partial but prodigal; yet the hand of man is needed to use this beneficence of benefaction.

"European travellers have been enraptured with the ever-varying scenery of the Cheat river region, as seen in a trip by rail; and none have been more impressed with it than those who have climbed the Alps and viewed with awe their towering heights and darkling depths beneath. It exerts unwonted emotions thus to wind around the steep side of a mountain spur and emerge from its shadows into a sunlit slope that falls abruptly away from the very edge of the car, hundreds of feet and reveals at the bottom a



SCENE ON GREENBRIER RIVER—(Chesapeake & Ohio Railway—(See p. 22).

long and winding valley, a singularly dark stream, whose chocolate colored waters contrast while harmonizing with the forest growth that reaches from the golden sunlight of the mountain top down to the river's brink. * * * The sturdiness of the forests, the hardy vigor of all vegetable life, the munificence of all visible nature, impress the traveller accustomed to see bare rock and stunted vegetation amid mountain scenery. There is nothing of poverty suggested and no intimation of sterility; few jutting crags are seen, unless hewn out of the mountain side in cutting the wild pathway of the railroad, and no rough rocks, piled heap upon heap, offend the eye as it sweeps the gracefully rounded knobs. * * * Lonely as the vast reaches of the woodland appear, and bold and varied as is the mountain face, there is always present the suggestion that every foot is habitable—that the hand of art may heighten the beauties and soften the few asperities of the scene. Thus the traveller pursues his western way down the Alleghenian slope, through scenery similar in its type, but slowly and continually modifying till it becomes noticeable only as a hilly, fruitful country divided into farms, naturally suited to the diverse uses of meadows, pasturage, and tillage, and watered with frequent and rapid streams."

SOME NATURAL WONDERS OF THE STATE.

The scenery of West Virginia is worthy of the brush of the painter, or the pen of the poet, for none grander or more magnificent exists east of the Mississippi. Who having once seen, will ever forget the "Hawk's Nest" in Fayette county—often called "Marshall's Pillar"—a frowning precipice said to be over twelve hundred feet high and overhanging New River. "Imagine yourself standing upon its projecting point, a perpendicular rock, 1,292 feet from the valley below,

'On a rock whose haughty brow
Frowns o'er old Conway's foaming flood.'

Before you, as you look to the east, the New river is seen for the distance, perhaps, of several miles, winding or rather rushing, tumbling and foaming through the towering cliffs which environ it. Sweeping by this lofty promontory on which you stand, it suddenly turns its course in a southwest direction, and presents in the whole distance several beautiful cascades which send to the listening ear the far off but lulling sound of their waters. The cliffs, themselves, judging by the horizontal and corresponding strata of rock on either side, seem to have been originally united but torn asunder by some strong convulsion of nature, in order to give free passage

to the narrow but angry torrent which rolls majestically at their feet. The autumnal season gives to this imposing picture a magnificent and gorgeous drapery of which no man whose vision has been confined to lowland scenery can have the slightest conception."

"Hanging Rocks" in Hampshire county, one hundred and sixty feet high and leaning far out over the perpendicular, like the tower of Pisa, and over-shadowing the South Branch river; the "Trough" in Hardy county, through which far seven miles the South Branch of the Potomac rushes along between mountain walls, on either side, inclined from the perpendicular at an angle of little more than thirty degrees, and as symmetrical as if formed by the hand of man; the "Mountain Gate," below Moorefield; the "Image Rocks," below Petersburg in Grant county, where the South Branch tears its way through the Patterson's Creek mountains; "Greenland Gap," in Grant county, through the Allegheny Front mountains; the "Ice Mountain" in Hampshire county; "Lost river" in Hardy county, that dashes up against a mountain wall and then under it, to reappear two miles away to swell the tide of Great Cacapon river; the "Mouth of Seneca," in Randolph county; "Organ Cave," in Monroe county; "Peter's mountain," with its crest straight as a line stretching away for forty miles; and the Canons of New river, at the bottom of which eight hundred feet below, the river may be seen rolling on like a destiny. All these present scenes of sublimity and gradeur rarely witnessed.

In conclusion, West Virginia may be called "a realm of beautiful modulations"—an ever changing scene of dale and hill, of valley and mountain. No other region affords more beautiful landscape views of mountain, plateau and low-land, especially when clothed in summer's green, or when its forests are dressed in their autumn robes of silver, scarlet, gold, and purple.

WEST VIRGINIA RIVERS—THE DRAINAGE OF THE STATE.

West Virginia is a realm of beautiful perennial streams flowing with rapid currents down mountain slopes, across plateaus, and into the low-lands below. The river system of the State is, of course, determined by its topography, which fixes the course and the velocity of its streams. This "river system" is naturally divided into two subordinate ones, each entirely distinct from the other. "Allegheny Top," on the State line where the corners of Pendleton, Pocahontas and Randolph counties in West Virginia, and Highland county, Virginia, are joined, is the culminating point—the superior elevation of the great land masses of the Allegheny mountain

chain—and from it the waters flow to all points of the compass. From crystal fountains here on this lofty mountain apex, flow six beautiful mountain rivers. One of these, Jackson's river, rises east of the State's border and flows away to the southeast to join the historic James river of Virginia; two others, the Greenbrier and the Elk, find their way to the southwest and mingle their waters with those of the Great Kanawha; still two others, the Tygart's Valley and the Cheat rivers, hasten down the slope to the northwest to unite with the Monongahela; while yet another, the South Branch, pours its waters down the northeast slope of the mountain to the base, where with the North Branch, it forms the Potomac. The spot where these majestic streams have their head, has been aptly called the "Birthplace of Rivers."

THE POTOMAC RIVER.

In a cursory survey of the rivers of the State, let us first notice the Potomac, the great eastward flowing river, whose basin forms a distinct physical section, drains the eastern Pan-Handle and flows away through the Blue Ridge to the Chesapeake bay. It is formed by the confluence of the North Branch and the South Branch.

The North Branch has its source, or first fountain in Tucker county, at the southwest corner of Maryland, at the "Fairfax Stone" on the summit of Back-Bone mountain, 3,100 feet above sea level. Thence it flows down the steep declivity, and thus along a gentler incline for a hundred miles, and unites with the South Branch where the altitude is but 540 feet. Its descent is, therefore, 2,560 feet, or an average fall of twenty-five feet to the mile. In its course it has received from the south or West Virginia side, the waters of Stony river and Abraham's creek, through Tucker county; New creek and Patterson's creek from Mineral county, but both having their sources in Grant county. Its principal tributaries on the Maryland side are Savage river, Will's creek, Evitt's creek and Sugar run. The surveyors of Lord Fairfax planted the 'Fairfax Stone" at its head, or first fountain, on the 17th of October, 1746. At the mouth of Will's creek, on its northern bank, stands Cumberland City, the metropolis of western Maryland.

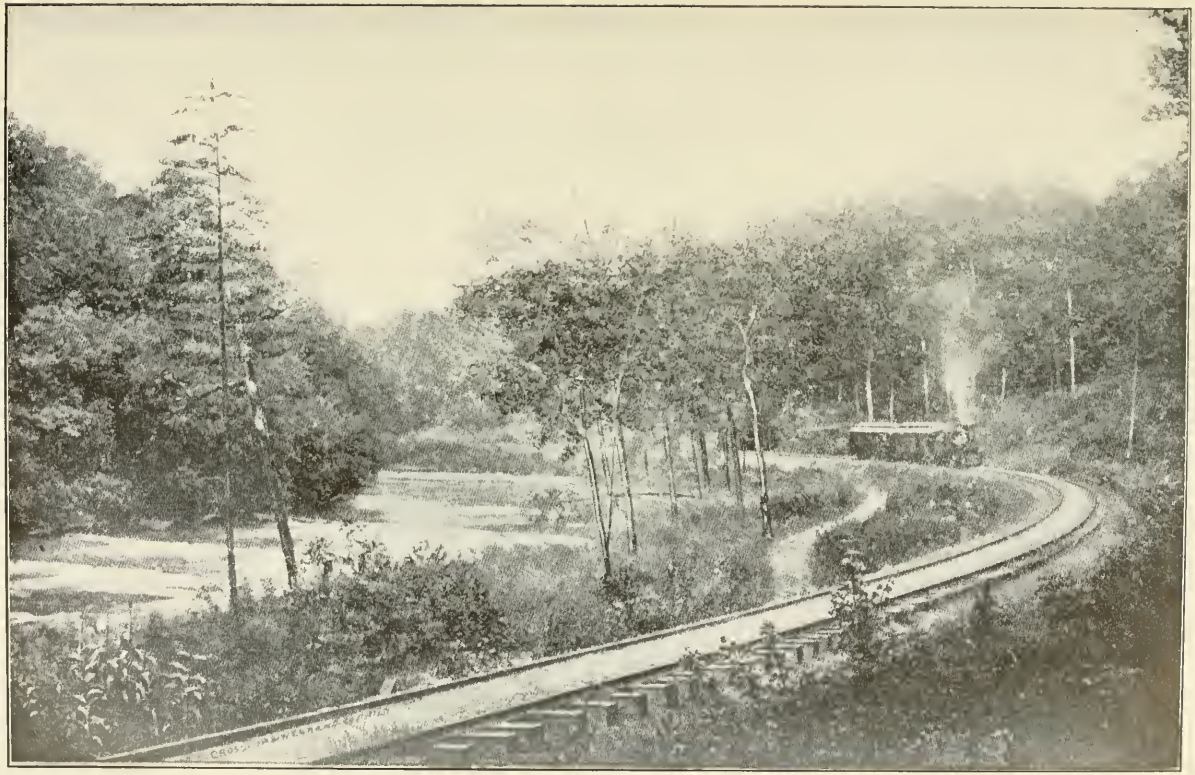
The South Branch, as stated, has its source in the "Birthplace of Rivers," its first fountain being in Highland county, Virginia, at an elevation of 3,000 feet. Thence it flows east of north through Pendleton, Grant, Hardy and Hampshire, where it unites with the North Branch. Its meandering course has been about two hundred miles in which it has received the North Fork and South Fork, with North Mill creek and South Mill

creek from the valleys of Pendleton county; Looney's creek in Grant county; and Mill creek in Hampshire county. Its descent from fountain to mouth has been 2,500 feet, or twelve feet to the mile. On one of its tributaries in Pendleton county stood Fort Seybert, a frontier post, the garrison of which was massacred by the Shawnee Indians in May, 1758. On its east bank in Hampsire county is the town of Romney founded by Lord Fairfax and with one exception the oldest town in the State. Along its course is much magnificent scenery. On March 23, 1747, George Washington, then engaged in surveying lands on the Potomac, witnessed a war-dance by more than thirty Indians at the confluence of the North and South Branches.

The Potomac, thus formed by the North and South Branches, now flows on in a tortuous and devious course between Maryland and West Virginia, with increasing volume but decreasing velocity for, perhaps, more than a hundred miles, and the descent from the confluence of the North and South Branches to the Blue Ridge, being but 260 feet. In this course it has received from the West Virginia side the waters of little Cacapon and Great Cacapon rivers in Hampshire county, the latter rising in Hardy county where its principal tributary is Lost river; Sir John's run and Sleepy creek in Morgan county; Back creek and Opequon river, both of which rise in Frederick county, Virginia, and flow in through Berkeley county; and lastly the beautiful Shenandoah river, which, after draining nearly all of the Shenandoah Valley, comes in through Jefferson county, joins the Potomac at Harper's Ferry, and the two united, pass through the Blue Ridge.

"More than a hundred years ago, Thomas Jefferson, sitting on "Jefferson's Rock" at Harper's Ferry, wrote of the Potomac chasm through the Blue Ridge, and this is what he said:

"The passage of the Potomac through the Blue Ridge is, perhaps, one of the most stupendous scenes in nature. You stand on a very high point of land. On your right comes up the Shenandoah, having ranged along the side of the mountain an hundred miles to seek a vent. On your left approaches the Potomac, in quest of a passage also. In the moment of their juncture they rush together against the mountain, rend it assunder and pass off to the sea. The first glance of this scene hurries our senses into the opinion, that the earth has been created in time, that the mountains have been formed first, that the rivers began to flow afterwards, that in this place particularly, they have been dammed up by the Blue Ridge of mountains, and have formed an ocean which filled the whole valley;



COMING DOWN TUG RIVER—McDowell County—(See p. 27).
(Norfolk & Western Railroad.)

that continuing to rise, they have at length broken over at this spot and have torn the mountain down from its summit to its base. The piles of rock on each hand, but particularly on the Shenandoah, the evident marks of their disrupture and avulsion from their beds by the most powerful agents of nature, corroborates the impression. But the distant finishing which nature has given to this picture is of a very different character. It is a true contrast to the foreground. It is as placid and delightful as that is wild and tumultous. For the mountain being cloven assunder, she presents to your eye, through the cleft, a small catch of smooth, blue horizon, at an indefinite distance in the plain country inviting you, as it were, from the riot and tumult roaring around to pass through the breach and participate in the calm below."

Many critics have quoted this from Jefferson and have pronounced it one of the finest passages in American literature.

On the south side of the Potomac, in Jefferson county, is Shepherdstown, the oldest town in West Virginia; at the mouth of Little Cacapon river, in the spring of 1755, General Braddock's army crossed the Potomac from West Virginia, to its north bank when on his march to the fatal field of Monongahela. On the broad reach of the river at Shepherdstown, in 1784, James Rumsey navigated the first steamboat in the world, and its trial was witnessed by George Washington and other distinguished men of the time. Across the Potomac from Shepherdstown, in Maryland, is the pretty little Antietam Valley which is destined ever-more to have a place in American history; and all the world knows the story of Harper's Ferry. Once contending armies struggled for the mastery of these banks but now—

"The grey Potomac's stately tide.
Has washed the stain of blood away,
From mouth to fountain, far and wide,
Her shores are reconciled today."

WEST VIRGINIA RIVERS—DRAINAGE ON THE WEST SIDE OF THE MOUNTAINS.

The Ohio river flows away from the confluence of the Allegheny and Monongahela a thousand miles to the Mississippi and of this distance, two hundred and fifty-six miles is West Virginia frontage on her northwest border. It is one of the grandest rivers in America—a royal highway of civilization. La Salle discovered it; De Celeron buried leaden plates at the mouth of its tributaries, bearing inscriptions asserting the claims of France

to it; Great Britain won it; the United States possessed it; and West Virginia exercises jurisdiction over it for nearly three hundred miles. It drains an immense area of which all West Virginia to the northwest of the Allegheny mountains is a part. Down this incline flow six West Virginia rivers into the Ohio. These are the Monongahela, Little Kanawha, Great Kanawha, Guyandotte, Twelve Pole, and Big Sandy, all of which belong to the Trans-Allegheny River System. We shall notice these in the order named.

THE MONONGAHELA RIVER.

The Monongahela is formed by the confluence of the West Fork and Tygart's Valley rivers; the latter is the principal branch. It has its source in the "Birthplace of Rivers," on the slope of the Cheat River mountains in the eastern part of Randolph county; and flows along the eastern base of the Rich mountains until it breaks through them to the west and runs centrally through Barbour and Taylor counties and into Marion county to its junction with the West Fork river. Its course is something more than a hundred miles. Its altitude, at Beverly in Randolph county, is 1,941 feet above sea level; while at its mouth it is 885 feet; so that between these points the descent is 1,056 feet. In its course it has received the waters of its Middle Fork in Barbour county, which is the boundary between Randolph and Upshur counties, and is formed by its Right and Left Hand Forks in Webster county. A few miles below, but still in Barbour county, it is joined by the Buckhannon river, whose volume is equal to its own, and from its source in Webster county, its course has been centrally through Upshur county, and thence into Barbour county. Tygart's Valley river derives its name from David Tygart who, in 1754, with a man named Files, settled on its banks near where Beverly in Randolph county now stands. They were the first white settlers in West Virginia west of the Allegheny mountains. Soon Files' family, with the exception of one member, fell victims to savage barbarity, and Tygart with his fled to the South Branch Valley, leaving his name on a pretty mountain river in West Virginia. The West Fork river has its source in the southern part of Lewis county and flows centrally through it, therein receiving the waters of Sand Fork, Coal creek, Hacker's creek and Freeman's creek; thence running through Harrison county, where Lost creek, Elk creek, Simpson creek, and Wolf creek are among its tributaries, it continues its course into Marion county where, as stated, it unites with the Tygart's Valley river to form the Monongahela. In its course, the descent has been 207 feet from source to mouth.

From the junction of these streams the Monongahela flows away to the southern Pennsylvania line where its altitude is 813 feet, its descent from its source—the junction of the Tygart's Valley and West Fork rivers—having been seventy-two feet. From here it flows on through western Pennsylvania and with the Allegheny river forms the Ohio.

At Point Marion, just beyond the Pennsylvania line, the Monongahela receives the waters of its great eastern branch, the Cheat river, a most remarkable stream. It is formed in Tucker county by tributary streams having their fountain heads in the "Birthplace of Rivers," and flowing through narrow valleys between parallel mountain ranges in Randolph county. The principal of these are Shaver's Fork between Cheat mountain and Shaver's mountains; Otter Fork between Shaver's mountains and Middle mountains; Glade Fork and Laurel Fork between Middle mountains and Dry Fork mountains; and Dry Fork between Dry Fork mountains and the Allegheny mountains. The Cheat river thus formed, pursues its winding course through Preston county, where after receiving the waters of Wolf creek and Buffalo creek, it breaks through Briar mountain, and having been joined by Middle creek, Laurel Fork and Sandy creek, runs through the eastern corner of Monongalia county, crosses the Pennsylvania line and unites with the Monongahela at Point Marion. At Horton on its Dry Fork, the altitude is 2,805 feet and at its mouth but 815 feet; hence, it has rushed down a declivity in which the descent is 1,990 feet—probably an average fall of ten feet to the mile.

The Song of the Monongahela.*

"Hey-Ho! I leave my haunts in the woods,
I leave the land of snow;
Hey-ho! I leave my mountain friends,
And away to the south I go;
Away to run through cotton fields,
Away to swell the orange yields,
Away to be kissed by sun and breeze,
Away to be mixed with shoreless seas.
Hey-ho! to the wider world I run,
Hey-ho! to the land of the sun.

I'll fill the Beautiful River's heart
With joy as free as an elf;

*From "Ashes and Incense", Waitman Barbe. J. B. Lippincott Company, Philadelphia.

I'll e'en become a very part
  Of the Father of Water's himself.
With wider purpose, larger sweep,
  My steadfast course I'll run,
Like one whose aims in life reach out
  Till all his work is done,
And he at last merged in the sea
  Whose farther shore no man
Has ever glimpsed with earth-bound eyes
  Since first the world began.
The mighty, pulsing trade I'll serve
  And yield to man's behest;
His burdens bear from land to sea
  Adown the wondrous west.
And just as lovers sing to me here
  When the shades of the hills reach out
Across the water's crystal bed
  And the harvest moon is near
E'en so beneath the southland shades,
  When the mocking-bird sings low
And the breeze comes up from the restless sea,
  They'll sing to me there I know.
When the air is rich with the odor of May,
  Swept in from the distant pines,
They'll sing to me then and vow their love
  Is measured by no confines.

But back I'll come to my mountain home
  To tell the woodland sprites
How maidens' sighs and thrushes' songs
  Fill all the southern nights.
Like one who loves his childhood home
  That's set among the hills,
And oft returns from broader fields
  To feel its mystic thrills,
So I shall come from the ocean's sweep
  To hear the same old song,
And leap the rocks and kiss the boughs.
  That have waved for me so long.

THE MAMMOTH MOUND—Moundsville, Marshall County—(See p. 29).
(One of the greatest pre-historic monuments in America. It is 240 feet in diameter at the base; 70 feet in height, with apex flat, and about 150 feet in circumference.)

Then away to my task for the sons of men,
Away through city and plain;
The voices of comrades bid me stay,
But all their tempting is vain.
Hey-ho! to the wider world I run,
Hey-ho! to the land of the sun."

Waitman Barbe.

LITTLE KANAWHA RIVER.

A number of small streams all of which rise within and flow from the Ohio Valley region, drain the northwestern or upper part of the State and flow into the Ohio. Among these are King's creek in Hancock county; Cross creek and Buffalo creek in Brooke county; Wheeling creek in Ohio county; Grave creek and Fish creek in Marshall county; Big and Little Fishing creeks in Wetzel county; Middle Island creek, draining nearly all of Doddridge county and flowing through Tyler and Pleasants counties; in the latter of which are also French creek and Cow creek.

After these come the Little Kanawha river, the second of the six West Virginia rivers before enumerated. It may be said to interlock with the West Fork of the Monongahela, where it has its fountain springs on the Cumberland Plateau, in Braxton, Upshur and Lewis counties. Thence it flows through Gilmer, Calhoun, Wirt, and Wood counties into the Ohio at Parkersburg. At Flatwoods in Braxton county, near its source, its altitude is 1,121 feet; while that of its mouth is 600 feet, thus making its descent between these points but 521 feet—less than three feet to the mile. Its principal tributaries in Gilmer county are Salt creek, Sand Fork, Leading creek, Cedar creek and Tanner's Fork; after passing into Calhoun county, it receives Steer creek, the upper tributaries of which—Crooked Fork and Bear Fork—drain the northern part of Braxton county; just after passing into Wirt county, it is joined by West Fork, of which Henry's Fork drains the eastern part of Roane county; next below, the affluents are Spring creek and Reedy creek, parallel streams coming in from Roane county, and the latter formed by its Right and Left Forks; on the boundary between Wirt and Wood counties, Hughes river, the largest tributary stream comes in on the northern side; its source is in Doddridge county and it flows centrally through Ritchie county. On the map engraved in 1784 to accompany Jefferson's "Notes on Virginia," this stream is called Junius river. Bulltown, near the source of the Little Kanawha, derives its name from Captain Bull,

an Indian chief who with his family was killed in 1774, by the whites and the bodies were thrown into the river. It was believed that these Indians were implicated in the murder of the Stroud family on Gauley river, a few days previously.

THE GREAT KANAWHA.

Continuing down the southeast bank of the Ohio, the next streams of importance are Pond creek, Sandy creek and Big Mill creek in Jackson county; Ten Mile creek and Old Town creek in Mason county; and next is the Great Kanawha, the largest and most important river of the State. It is formed by the confluence of the New river and the Gauley, two miles above Kanawha Falls and one hundred from the Ohio. Of these two streams the New river is the larger. It rises in the mountains of Western North Carolina, flows across Southwest Virginia and enters the State of West Virginia through a gap between East river mountain and Peters mountain, between the counties of Monroe and Mercer. Thence it flows on through Summers county and between Summers and Raleigh counties and into Fayette county, to its confluence with the Gauley. From Mercer county it receives East river, and from Monroe, Indian creek flows in; in Summers county its first tributary stream on the south is Blue Stone river, which has its source in Tazewell county, Virginia, and then drains nearly all of Mercer county: four miles below on the north side of New river, is the mouth of Greenbrier, its chief tributary stream and one of the prettiest and most romantic rivers of the whole Appalachian System. It has its fountain sources on lofty mountain slopes in the "Birthplace of Rivers;" and flows centrally through Pocahontas county into Greenbrier county; thence between Greenbrier and Summers counties until it falls into the New river at Hinton. Its altitude at the divide between its source and that of Cheat river is 3,143 feet; that of its mouth at Hinton is 1,372; making in its course a descent of 1,771 feet through which it falls with great rapidity. In Pocahontas its principal tributaries are Bear creek and Knapp's creek; while in Greenbrier it receives Spring creek, Anthony's creek, Howard's creek—on which is the far-famed White Sulphur Springs—and Muddy creek, while Second creek comes in from Monroe county. Below the mouth of the Greenbrier, the New river receives the waters of Lick creek, Meadow creek, Keeney's creek and Mill creek on the east side, and Glade creek, Piney creek, Loop creek and Wolf creek, from the west side.

The Gauley river has its source on the Alleghany Highland in the

western part of Pocahontas, southern part of Webster, and northern part of Greenbrier counties; thence it flows centrally through Nicholas county; thence between Nicholas and Fayette counties, and thence into the latter to its confluence with New river. In Webster county, its principal affluent is William's river which flows in from Pocahontas county; those in Nicholas are Cranberry river from Pocahontas and Webster counties, and Cherry river from Greenbrier; other smaller streams are Persinger's creek, Mumble-the-Peg creek, Peter's creek and Twenty Mile creek; below these, Meadow river comes in on the east side; at Carnifax Ferry; it rises in Greenbrier county and forms part of the boundary between Nicholas and Fayette counties. The altitude of the mouth of William's river is 2,215 feet; that of the mouth of Gauley but 650 feet; making a descent of 1,565 feet down which the Gauley sweeps its way.

The beauties of the Gauley have awakened the poet's lay. Thomas Dunn English, a former West Virginian, afterward a member of congress from New Jersey, and author of "Ben Bolt," has written the following ode:

Gauley River.*

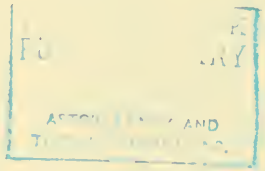
"The waters of Gauley,
Wild waters and brown,
Through the bill-bounded valley,
Sweep onward and down;
Over rocks, over shallows,
Through shaded ravines,
Where the beautiful hallows
Wild, varying scenes;
Where the Tulip tree scatters
Its blossoms in Spring,
And the bank-swallow spatters
With foam its sweet wing;
Where the dun deer is stooping
To drink from the spray,
And the fish-eagle swooping
Bears down on his prey—
Brown waters of Gauley,
That sweep past the shore—

* "Select Poems of Thomas Dunn English", edited by his daughter, Alice English.

Dark waters of Gauley
That move evermore.
Brown waters of Gauley,
At eve on your tide,
My log canoe slowly
And careless I guide.
The world and its troubles
I leave on the shore,
I seek the wild torrent
And shout to its roar.
The pike glides before me
In impulse of fear,
In dread of the motion
That speaks of the spear—
Proud lord of these waters,
He fears lest I be
A robber rapacious
And cruel as he.
He is off to his eddy,
In wait for his prey;
He is off to his ambush,
And there let him stay,

Brown waters of Gauley,
Impatient ye glide,
To seek the Kanawha,
And mix with its tide—
Past hillside and meadow,
Past cliff and morass,
Receiving the tribute,
Of streams as ye pass,
Ye heed not the being,
Who floats on your breast,
Too earnest your hurry,
Too fierce your unrest.
His, his is a duty
As plain as your own;
But he feels a dullness
You never have known.

PIONEER HOME IN WEST VIRGINIA A HUNDRED YEARS AGO—(See p. 35.)



He pauses in action,
  He faints and gives o'er;
Brown waters of Gauley,
  Ye move evermore.

Brown waters of Gauley,
  My fingers I lave
In the foam that lies scattered
  Upon your brown wave.
From sunlight to shadow,
  To shadow more dark,
'Neath the low bending birches
  I guide my rude barque;
Through the shallows whose brawling
  Falls full on my ear,
Through the sharp mossy masses,
  My vessel I steer.
What care I for honors,
  The world might bestow,
What care I for gold,
  With its glare and its glow;
The world and its troubles
  I leave on the shore
Of the waters of Gauley
  That move evermore."

The Great Kanawha river, thus formed by the junction of the New river and the Gauley, flows on through Kanawha, Putnam and Mason counties to its confluence with the Ohio at Point Pleasant. After plunging over Kanawha Falls, twenty-two feet in height, it receives a number of small streams, among them being Paint creek, Kelley's creek Hughes creek, Len's creek, Cabin creek, and Witcher's creek, and at Charleston, the capital of the State, it is joined by the Elk, its largest tributary, which has its source in the "Birthplace of Rivers," on the slope of the Elk mountains in the northern part of Pocahontas county. Thence it flows centrally through Webster, Braxton, Clay and Kanawha counties to its confluence with the Great Kanawha. Its altitude at Addison, in Webster county is 1,463 feet; at Charleston, 603 feet; a difference of 860 feet. Down this descent the river flows with an average fall to the mile of about eight

feet. Small streams flow into it from the western part of Randolph county, and in Webster, its principal tributary is Back Fork. In Braxton it is joined by Holly river, which flows in from Webster county and the waters of Laurel creek, Wolf creek, and, lastly, Big Birch river from the northern part of Nicholas and eastern part of Webster counties. Among the tributaries in Clay county are Big Buffalo and Big Sycamore creeks, while in Kanawha county, Big Sandy creek flows in from Roane county, and Little Sandy and Blue creek are important streams.

Twelve miles below Charleston, the Great Kanawha receives another affluent. This is Coal river which drains the western half of Raleigh county; flows through the eastern part of Roane county, and thence into Kanawha county, where, at St. Albans, it has its mouth. Its upper tributaries are Clear Fork and Marsh Fork. Below there, its chief affluent, Little Coal river flows in, Pond Fork and Spruce Fork of which drain nearly all of Boone county.

Seven miles below St. Albans, the Great Kanawha receives the waters of another stream. This is Pocatalico river, which has its sources in Roane County, from which it flows into Putman county where its principal branch is Middle Fork.

It has been said that the Great Kanawha flows one hundred miles from the mouths of the New and Gauley rivers to the Ohio. Through this course the descent is one hundred feet or an average of one foot to the mile. At its mouth on the 10th of October, 1774, there was fought the most fiercely contested battle ever waged between the Indians and the white men in America. The contending forces were a Virginian army under General Andrew Lewis on the one hand, and the warriors of the confederated nations of the Ohio wilderness on the other. The whites were victorious.

THE GUYANDOTTE RIVER.

The next of the series of West Virginia rivers below the Great Kanawha, is the Guyandotte which has its source in Basin Spring between Barker's and William's ridges in Wyoming county on the Cumberland Plateau; whence it flows through Logan and Lincoln counties, and thence into Cabell county, where, at the town of Guyandotte three miles above the city of Huntington, it unites with the Ohio. Its altitude at Richview—the mouth of Rockcastle creek—in Wyoming county, is 1,275 feet; that at its mouth is 560 feet; its descent, therefore, is 715 feet in a meandering course of, perhaps, one hundred and seventy-five miles. In Wyoming

county it receives Pennack creek which breaks through Micajah's Ridge from McDowell county, Rockcastle creek, Indian creek and Clear Fork which rise in Wyoming; in Logan county, Buffalo creek, Rich creek, and Island creek are the principal streams which flow into it; at Barboursville, in Cabell county, it is enlarged by its chief affluent, the Mud river, which rises in Lincoln county, where it is formed by the confluence of Middle Fork and Trace Fork, and thence it flows into Cabell county to become part of the Guyandotte.

TWELVE POLE RIVER.

The next West Virginia river falling into the Ohio and the fifth in the series is the pretty little Twelve Pole river which rises at the base of Guyan Ridge in Mingo county; whence it flows into Wayne, where its Right and Left Forks are united. There, too, it receives the waters of Kiah's creek, Camp creek and Beech creek, and thence flows on to the Ohio in Wayne county. Its name is derived from the fact that the surveyors, when locating the Savage Land Grant, at its mouth, in 1784, found its width to be twelve *poles* or rods. It is the only river of the State having its source within the Ohio Valley Section. Its length does not exceed a hundred miles and it has a descent from source to mouth of 231 feet, or on an average of something more than two feet to the mile.

THE BIG SANDY RIVER.

The sixth and last of the State's rivers flowing into the Ohio is the Big Sandy, which, with its chief affluent—the Tug river—forms the boundary between West Virginia and Kentucky for a hundred and thirty miles. The Tug river, which is the West Virginia branch, has its fountain head on the northern slope of Dividing Ridge in McDowell county, on the Allegheny Highland, where its upper tributaries are the Elkhorn creek, Sand Fork, Dry Fork, and Panther creek; thence it flows along the southwestern boundaries of Wyoming, Mingo and Wayne counties, and empties into the Ohio at the town of Kenova. Its principal affluent is the Levisa Fork, flowing in from Kentucky; in Mingo county it receives the waters of Pigeon creek and Morrowbone creek, and of Mill creek in Wayne. At Ennis, near the source of Elkhorn, the altitude is 1,995 feet, and at the mouth of Pigeon creek but 630 feet, thus giving to the river a descent of 1,365 feet, in a distance of 103 miles, or an average of thirteen and one-fourth feet to the mile. A series of rapids extending over several miles and known as the "Roughs of Tug" is the most remarkable in the State. Here in 1757, a detachment of Virginia troops, on an expedition against the Indians north of the Ohio, lost their supplies by the wrecking of

canoes and batteaux, and in consequence disbanded and returned to their homes.

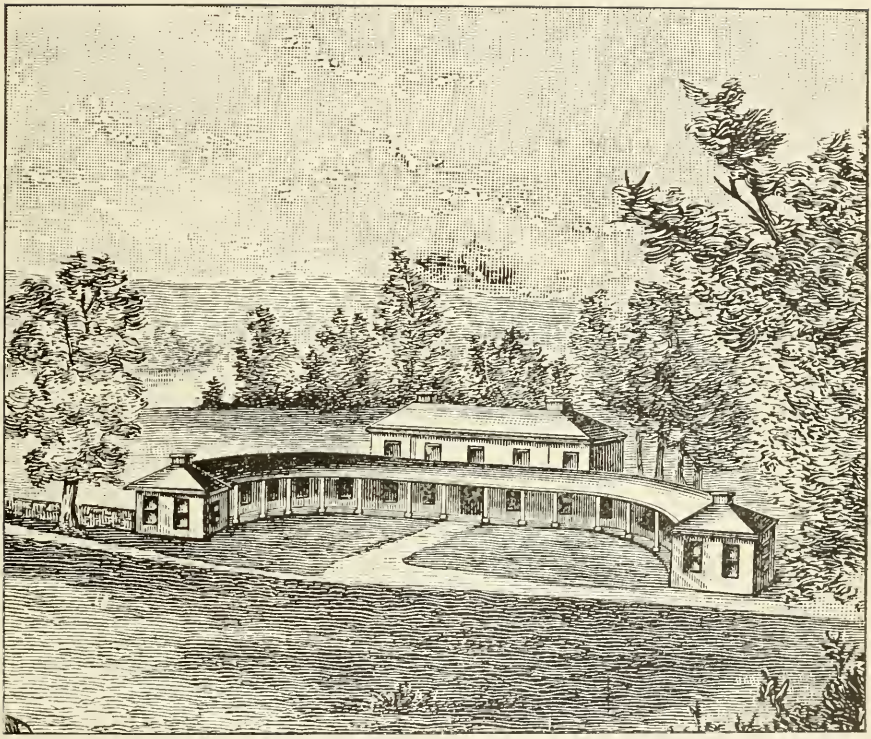
OBSERVATION.

Of the seven principal West Virginia rivers, four of them—the Potomac, Monongahela, Great Kanawha and Big Sandy—have their fountain heads on the Allegheny Highland; two of them—the Little Kanawha and the Guyandotte—rise on the Cumberland Plateau; while one—the Little Twelve Pole—has its source and entire course in the Ohio Valley Section. These rivers with their tributary streams extend to every portion of the State, their drainage areas being as follows:

The Potomac and its tributaries	3,500 square miles.
The Monongahela and its tributaries	4,300 square miles.
The Little Kanawha and its tributaries	2,200 square miles.
The Great Kanawha and its tributaries	8,800 square miles.
The Quyandotte and its tributaries	1,800 square miles.
The Twelve Pole and its tributaries	500 square miles.
The Tug River and tributaries	1,300 square miles.
Other small streams	2,315 square miles.
The State's total area	24,715 square miles.

Such is the natural drainage of West Virginia. It is unsurpassed in thoroughness, and, perhaps, not equalled by that of any other American State. There is not a single square mile of the whole area without proper drainage, and there is not, at any time or season, a single square mile of stagnant waters in the State. It must be remembered that for a large part of the course of all these rivers, their fall per mile is quite small, by far the greater part of their descent occurring within the gorges through which they have cut their way across the Cumberland Plateau, and in the deep channels worn out in the eastern part of the Ohio Valley Section. In this way has the boundless natural resources of the State been laid bare and rendered of easy access to the hand of man.

In conclusion, let us ask who shall tell of the beauty and sublimity of the West Virginia scenery? No description can do justice to the subject. Over much of the State are the monuments—peaks and canons—of a war waged, through ages past, between rivers and mountains. These heights and depths both please and astonish the beholder. The first towering aloft, and in the second rushing, sparkling, foaming streams hastening on to a gentler flow in the lowlands and all fed by a bountiful rainfall and melting snow, make the observer feel that sublime nature has here displayed itself, for all around is a constantly changing panorama of valley, hill and mountain, of rivulet, brook and river.



THE BLENNERHASSETT MANSION—On Blennerhassett's Island, Ohio River, Wood County—(See p. 37).
(Erected in 1799; damaged by Militia in 1804; destroyed by fire in 1812.)

HISTORICAL OUTLINE.

WHITE MEN IN WEST VIRGINIA.

Who the first inhabitants of West Virginia were, we do not know. But they were Moundbuilders, for by these monuments we can trace them all over the State, and the Mammoth Mound at Moundsville, in Marshall county, one of the largest of its class in the United States, is the work of their hands. Different Indian nations and tribes, at various times, had their homes within the present limits of the State. The Conoys or Kanawhas, a tribal organization of the Delaware nation were early on New river and distributed over the Allegheny Highland; a band of the Mohecans were in the Great Kanawha Valley about Kanawha Falls in 1670; a large part of the Shawnee nation were on the Upper Potomac and in the South Branch Valley prior to 1754; and the Delawares were numerous in the Monongahela Valley as late as 1760.

Sixty years passed away after the settlement at Jamestown before a white man saw any part of West Virginia. But in 1770, John Lederer, an explorer in the service of Sir William Berkeley, in company with a Captain Collet, nine Englishmen, and five Indians, left the York river, down near Chesapeake Bay, and proceeding by way of the falls of Rappahannock—now Fredericksburg, Virginia—to the mouth of the Rapidan; thence along the north side of the Rappahannock to its source; and thence to the Blue ridge, from the crest of which near Harper's Ferry, on the 26th of September, of that year, they looked down upon the Shenandoah Valley, beyond which they beheld in the distance, standing like a towering wall, the Great North Mountain and other summits in what is now Berkeley and Morgan counties of West Virginia.

FIRST WHITE MEN AT KANAWHA FALLS.

Governor Berkeley was endeavoring to obtain information regarding the vast trans-Montane Region and in 1670, issued a commission to Major-General Abram Wood, "for ye finding out the ebbing and flowing of the water on the other side of ye mountains." General Wood could not himself engage in the exploration, but the next year he sent out a party consisting of Captain Thomas Batts, Thomas Wood, Robert Fallam, Jack

Neasam, the latter a servant of General Wood, and Perecute, a chief of the Appomattox Indians, as guide. They left the Appamattox town, now Petersburg, Virginia, on the first of September, 1671; on the 7th they were on the Blue Ridge; on the 13th, on Swope's Knob now in Monroe county, West Virginia; the next day they saw the high cliff walls which crown the canon of New river and on the evening of the 16th they reached Kanawha Falls, where they "had a sight of a curious river like the Thames at Chelsea, but had a fall that made a great noise." Its course was nearly north and they supposed that it turned to the west "about certain pleasant mountains which they saw to the westward." There they encamped and here is what the Journal says:

"September 17th. Early in the morning we went to seek some trees to mark, our Indians being impatient of longer delay, by reason it was like to be bad weather, and that it was so difficult to get provision. We found four trees exceeding fit for our purpose, that had been half barked by our Indians, standing one after another (the trees). We first proclaimed the King in these words: 'Long live Charles ye 2d, by the grace of God, King of England, Scotland, France, Ireland and Virginia and of all the territories thereto belonging; defender of the faith, &c.; fired some guns and went to the first tree which we marked thus C R with a pair of marking irons for His Sacred Majesty; then the next thus, W. B., for the right hon'ble Governor Sir William Berkeley; the third thus, A W, for the hon'ble Maajor-General Wood; the last thus R F., P. for Perecute, who said he would turn Englishman, and on another tree hard by these letters, one under another, E N., T T., N. P., V E R., after which we had done, we went ourselves down to the riverside, but not without great difficulty, it being a piece of very rich ground whereon the Mohicans had formerly lived and grown up so with weeds and small prickly locusts and thistles to a great height that it was almost impossible to pass. It cost us hard labor to get through. When we came to the river side we found it better and broader than we expected much like James river at Col. Staggs the falls much like these falls, we imagine by the water marks that it flows here about three feet. It was ebbing water when we were here. We set up a stick by the water side, but found it ebb very slowly. Our Indians kept up such a hollowing that we durst not stay away any longer to make further trial. Immediately upon our coming to quarters, we returned homewards." Such was the discovery of the falls of the Great Kanawha, September 16, 1671—two hundred and twenty-three years ago.

Forty-five years passed away and Virginia again had a governor in-

terested in western exploration. This was Alexander Spottswood. Equipping a party of thirty horsemen and heading it in person, he left Williamsburg, then the colonial capital of Virginia, June 20, 1716. Pressing on through the Piedmont Region, the party halted on the crest of the Blue Ridge, from which the intrepid governor and his companions looked away to the westward, saw in the distance the mountain peaks about the "Birthplace of Rivers," now in West Virginia. Descending the western declivity of the Blue Ridge by way of Swift Run Gap, they encamped on the Shenandoah, which they called the "Euphrates"—the first Christian name bestowed upon a West Virginia river—and the next morning, September 6th, crossed to its west bank and took possession of the now far-famed Shenandoah Valley "in the name of King George the First of England," fired guns and drank a health to the governor. Then, after farther exploration, all returned to Williamsburg, where the governor organized the Trans-Montane Order or Knights of the Golden Horse-Shoe, giving to each of those who had accompanied him a minature horse-shoe bearing the inscription *"Sic jurat transcendere Montes"*—thus he swears us to cross the mountains. These were also given to any one who thus obligated himself to comply with the inscription.

FIRST PERMANENT SETTLEMENT IN THE STATE.

But white men were soon to occupy West Virginia. In 1725, John Van Metre, an Indian trader from the Hudson river, traversed the lower Shenandoah, Upper Potomac, and South Branch Valleys, but the honor of fixing the first home in the State was reserved for another. This was Morgan *ap* Morgan who, in 1727, reared his cabin on the site of the present village of Bunker Hill, in Mill Creek Magisterial District in Berkeley county. He was a native of Wales who came early in life to Pennsylvania and thence removed to the Shenandoah Valley. He was soon followed by some German people from Pennsylvania, whose ancestral home was old Mecklenberg in the Fatherland; they crossed the Potomac at the "Old Pack Horse Ford" in 1727, and a mile above, on its southern bank, built a little village which they called New Mecklenberg. This is now Shepherdstown, the oldest town in West Virginia. In 1730, Isaac VanMetre, son of the explorer, received from Governor William Gooch a grant for a large body of land chiefly in what is now Berkeley and Jefferson counties. A part of this he sold to Joist Hite, who, in 1732, brought sixteen families from York, Pennsylvania, all of whom settled in the Lower Shenandoah Valley.

THE FAIRFAX LAND GRANT.

What is known as the "Fairfax Land Grant," was an important factor in the settlement of West Virginia. In 1681, King Charles II. granted to Lord Hopton and others what has long been known as the "Northern Neck of Virginia, including all the region lying between the Potomac and Rappahannock rivers in Virginia, and extending west of the Blue Ridge where it embraced all of the West Virginia counties of Jefferson, Berkeley, Morgan, Hampshire, Hardy, Grant, Mineral, and part of Tucker. The title to this property passed from one to another until it became the property of Thomas, Sixth Lord Fairfax. He resolved to have its boundaries ascertained, and, after ten years of effort on his part, his surveyors followed up the Potomac to the first fountain of its North Branch, where, on the 17th of October, 1746, they erected the famous "Fairfax Stone," the first monument marking boundary of real estate in West Virginia. Then he resolved to sell these lands in quanities to suit purchasers, and, in 1747, he sent young George Washington, and his nephew, William Fairfax, to survey and locate these lands. The boy surveyors crossed the Blue Ridge; William Lindsy piloted them into the Upper Potomac Wilderness; Henry Ashby and Richard Taylor were chainmen, and Robert Ashby, marker. More than three hundred tracts were surveyed and thus it was that the leader of the American armies in the Revolution and the first President of the United States, surveyed the first farms in West Virginia. Later, the South Branch Manor, containing 55,000 acres in Hardy county; and the "Patterson's Creek Manor" of 10,000 acres, and the "Fairfax Manor," both in Hampshire county, were laid out by other surveyors for Lord Fairfax.

In 1742, four years before the planting of the "Fairfax Stone," other explorers entered the southern part of the State. This year, John Peter Salley, accompanied by Charles St. Clair, John Howard, and his son Josiah Howard, left his home at the base of the Blue Ridge in Augusta county and proceeding through the Greenbrier Valley, reached New River, which the party descended to Richmond Falls; thence over the mountains to the westward of Coal river; down it to its mouth; and thence descended the Great Kanawha to the Ohio, where they arrived May 6th, 1742.

In 1749, Jacob Marlin and Stephen Sewell built a cabin on Marlin's Bottom, at the mouth of Knapp's creek, now in Pocahontas county and were thus the first white settlers on Greenbrier river. Here they were found in 1751 by John Lewis and his son Andrew, who this year came

WEST VIRGINIA HOSPITAL FOR THE INSANE—Weston, Lewis County—(See p. 62).

over the mountains as the surveyors of the Greenbrier Land Company, which had a grant for 100,000 acres on Greenbrier river.

CHRISTOPHER GIST'S EXPLORATIONS IN WEST VIRGINIA.

The Ohio Company, which was to be prominent in the early settlement of West Virginia, without actual results, was formed in 1748. Its stockholders were John Hanbury, Thomas Lee, then Governor of Virginia, Arthur Dobbs, Samuel Smith, James Wardrop, Capel Hanbury, Robert Dinwiddie, John Taylor, Presley Thornton, Augustus Washington, Richard Lee, Nathaniel Chapman, Jacob Giles, Thomas Cresap, John Mercer, James Scott, Robert Carter, George Mason, and the executors of the estate of Lawrence Washington. All were residents of Virginia and Maryland except the Hanburys, who were merchants of London. The King granted the Company 500,000 acres, of which 200,000 were to be largely located in the Northern Pan-Handle of West Virginia, Later, the Company desired to obtain a grant for the region between the Great Kanawha and Monongahela rivers. Christopher Gist, an eminent surveyor of North Carolina was employed to make exploration of this region. He repaired to the store-house of the Company which stood on the south bank of the Potomac, opposite Cumberland City, in what is now Mineral county, and there received his instructions. He was "To keep an exact diary and journal and therein note every parcel of good land with the quantity * * * with the breadth, depth, course and length of the several branches falling into the Ohio and the different branches any of them are forked into. * * * Observing also, the produce, the several kinds of timber and trees, and observing where there is plenty and where the timber is scarce. And you are not to omit proper observations on the mountains, barren or broken land, that we may on your return, judge of what quantity of good land is contained within the compass of your journey." Gist was also to observe such sites as might "be convenient for our building store-houses for the better carrying on a trade and correspondence down that river"—the Ohio.

Gist, accompanied by his son left the store-house of the Company on the 4th of November, 1751, and passing through Potomac Gap and the Backbone mountains, descended the Middle Fork of the Youghiougheny and reached the Monongahela at the mouth of Red Stone creek, and on the 15th crossed that river and engaged in exploring the adjacent lands, his son's feet having been so badly frozen that he was for the time unable to proceed. On the 8th of January, 1752, he was on the head of Fish creek in Mar-

shall county; February 1st, on Middle Island creek near where is now Middlebourne in Tyler county; February 11th he was on Hughes's river near where is now Harrisville in Ritchie county; February 14th, at the mouth of Standing Stone creek on the Little Kanawha river, where he cut with a cold chisel in large letters:

"THE OHIO COMPANY.
February 7th, 1751.
By Christopher Gist."

The inscription was the old style dating by which February 7, 1751, equaled February 14, 1752. February 15th he was near Elizabeth in Wirt county; two days later, on Poplar Fork in Mason county; and on the 21st of February encamped at the mouth of Thirteen Mile creek—now the town of Leon on the Great Kanawha river; on the 23rd he was at Letart Falls on the Ohio; March first, on Tygart's creek in Wood county; on the 7th at Big Grave creek in Marshall county; on the 9th at Buffalo creek in Brooke county. On the 12th he recrossed the Monongahela and on the 29th of March, 1752, arrived at the store-house of the company on the Potomac, having been absent four months and twenty-five days.

Gist made his report and a petition went over-sea to the King's Most Excellent Majesty, praying for a grant for the lands thus explored, and for permission to form a separate government in the region between the Allegheny mountains and the Ohio river. Then began years of waiting and negotiation which finally resulted in the merging of the Ohio and Walpole companies into the Grand Ohio Company, which continued its efforts to found a new government on the Ohio, until they were terminated by the Revolution. This proposed province was to have been called Vandalia; with Samuel Wharton, Governor, and the capital at the mouth of the Great Kanawha—now Point Pleasant in Mason county.

SETTLEMENTS WEST OF THE MOUNTAINS.

Meantime, exploration and settlement continued. In the year 1750, Doctor Thomas Walker with five companions went from Virginia into the Kentucky wilderness, whence the party journeyed northward; crossed the Big Sandy river, and on the 28th of June of the last mentioned year, reached the mouth of the Greenbrier. These were the first white men that traversed that part of West Virginia south of New River. In 1754, the old French and Indian War began; the next year Braddock's army was disastrously defeated on the fatal field of Monongahela. Thereafter, many West Virginia pioneers fell victims to savage barbarity, and num-

bers of those who escaped were for years shut up in frontier forts. But notwithstanding the storm of barbarian war, brave men pushed on into the wilderness. In 1756, Thomas Eckarly and his two brothers built cabins on Dunkard's Bottom on Cheat river, now in Preston county. Two years later, Thomas Decker and others began a settlement at the mouth of Decker's creek, on the Monongahela, where Morgantown now stands. In 1761, several families found homes on Muddy creek and elsewhere in what is now Greenbrier county. But the Indians soon broke up the Dunkard's Bottom and Decker's creek settlements, and in 1763 massacred the settlers on Muddy creek. In this year the French and Indian War terminated with the English in possession of the Ohio Valley; and in 1764, General Boquet marched an army into the Ohio wilderness, and in the Muskingum Valley made a treaty with the Indians who there gave up their captives. Ninety of those thus delivered had been carried away from the West Virginia settlements.

There were now ten years of a nominal peace, during which the settlements were widely extended. In 1764, John and Samuel Pringle settled on Buckhannon river, now in Upshur county, and John Simpson built a cabin where Clarksburg now stands. Four years thereafter, Zackwell Morgan and others made a permanent settlement at Morgantown, now in Monongalia county. In 1769, white settlers again returned to the Greenbrier Valley, and at the same time James Clark and John Judy reared their cabins on Big Sandy creek and thus became the pioneer settlers of Preston county. In two years, too, John Wetzel and the Siverts and Calverts found homes in the hill country about the source of Grave creek now in Marshall county. On a bright spring morning, in 1770, Ebenezer Zane stood at the mouth of Wheeling creek and looked upon the panorama of hill, island, and river spread out before him. The founder of a future city was then upon its site and he and his brothers, Jonathan and Silas, planted the first acre of corn ever grown where the city of Wheeling now stands. While they were thus engaged, Joseph Tomlinson built his cabin on the Grave Creek Flats, where Moundsville in Marshall county now stands; and a daring frontiersman of the name of Tygart found a home at the mouth of Middle Island creek now in Pleasants county. In 1772, James Booth and John Thomas became the first settlers of Marion county, they having established themselves at Booth's creek in that year. In 1773, James and Thomas Parsons came from the South Branch Valley and fixed their habitations at the Horse-shoe Bend of Cheat river, now in Tucker county. The next year Leonard Morris brought his family to the present site

of Marmet—old Brownstown—on the Great Kanawha river, and was thus the first permanent settler in Kanawha county.

The era of peace now ended; the Indians began hostilities and the din of preparation for war was heard in the West Virginia settlements. Lord Dunmore, Governor of Virginia, crossed the Blue Ridge, mustered an army in the Lower Shenandoah Valley and marched it to the banks of the Sciota river in the Ohio Wilderness. Another army was collected in the Upper Shenandoah Valley and, under General Andrew Lewis, marched by way of the Great Kanawha, and at its mouth, on the 10th of October, 1774, defeated the warriors of the Confederated Nations of the Ohio wilderness. With Dunmore, there were men from the South Branch of the Potomac, and others from the Greenbrier Valley were with General Lewis. Fort Henry at Wheeling and Fort Randolph at the mouth of the Great Kanawha river were now built and were the most western outposts of civilization.

Then came the Revolution, and West Virginia pioneers were ready. The first body of troops which joined Washington at Boston from the South side of the Potomac, was Colonel Hugh Stevenson's company from Berkeley—now Jefferson—county. West Virginians served in the north and in the south in that struggle and there are more graves of Revolutionary soldiers in West Virginia than in any other American state,—the Thirteen Original Colonies alone excepted. The struggle for Independence ended, but the Indian wars continued until General Wayne broke the savage power at the battle of Fallen Timbers in 1794. This forever put an end to savage warfare on the south side of the Ohio, and West Virginia pioneers were henceforth safe in their cabin homes.

At the close of the year 1800, men were felling the forests on the hills and in the valleys of West Virginia. Homes of thrift and industry gave evidence of long years of settlement in the Eastern Pan-Handle, while from the Allegheny mountains to the Ohio, cabin homes dotted the landscape. Thirteen of the present West Virginia counties then had an existence; Wheeling, Clarksburg, Wellsburg, Parkersburg, Point Pleasant and Charleston were at that time frontier villages, and the people continued to make history.

THE DESERTED ISLE: OR BLENNERHASSETT'S ISLAND AND ITS ASSOCIATIONS.

Situated in the Ohio river, two miles below the mouth of the Little Kanawha river, and then, as now, in Wood county, West Virginia, is the beautiful isle known all over the world as Blennerhassett's Island, for

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ASTOR, LENOX AND
TILDEN FOUNDATIONS.

SECOND HOSPITAL FOR THE INSANE—Spencer, Roane County—(See p. 64.)

the world knows the story connected with it. Harman Blennerhassett was born of Irish parentage in Hampshire, England, in 1767, and educated for the law. He inherited a valuable estate in Ireland of which he disposed by sale, and having resolved to come to America, he went to England to prepare for the voyage. While in that country he became acquainted with Miss Margaret Agnew, a daughter of the lieutenant-governor of the Isle of man, and a grand-daughter of the celebrated general of that name who fell in the battle of Germantown. She was young, intelligent and beautiful. She listened with delight to the stories of that far-off land in the Western World. There was a marriage and Harman Blennerhassett and his bride crossed the ocean and landed in New York City in 1797. In the autumn of the same year they crossed the mountains and reached Pittsburg. Here they obtained passage on a keel-boat which was at that day the most comfortable mode of travelling on the western waters, and in the course of time arrived at Marietta, at the mouth of the Muskingum river. Here the winter was spent in social intercourse, and, in 1798, Blennerhassett purchased the Island which has ever since borne his name, and the same year moved into a block-house on the upper end of it. Here he reared a palace, which was an ideal, an image of which had haunted his youthful fancy as a picture of sylvan beauty, of peaceful solitude, of calm repose. It was a mansion of which a king might have been proud. The halls were light, airy and elegant, with gay-colored carpets, splendid mirrors, classic pictures, rich tapestry with ornaments correspondingly elaborate, arranged with harmonious effect in accordance with the artistic taste of the mistress of the mansion. There, too, was stored a most valuable library, containing the rarest and costliest books to be found in Europe or America.

Aaron Burr, the slayer of Alexander Hamilton, and late Vice-President of the United States, set out on a journey through the western states, the object being, ostensibly, to purchase lands in the Louisiana Territory, but really to make arrangements for a private expedition against Mexico and the Spanish provinces, in the event of a war between the United States and Spain, which, at that time, seemed inevitable. Descending the Ohio, he called at the mansion which adorned the willow-fringed island, and from the moment that he set foot upon it, that home was doomed. Blennerhassett was a shining treasure, just such as Burr was seeking. He listened to the recital of the wild and visionary scheme and then embarked in it.

Beyond the Mississippi lay the vast region known as Louisiana, which the United States had but recently purchased from France. It was a region extending from the Gulf of Mexico to Canada, and from the Missis-

sippi to the Rocky Mountains. Away to the southwest of Louisiana lay Mexico, of which Texas was then a part, a country whose national existence and traditions antedate the discovery of America more than a thousand years. Its shores were first seen by white men in 1517, when Francisco Fernandez de Cordova, while cruising the Spanish Main, landed on the coast of Yucatan. It was Louisiana and Mexico in which Burr hoped to appear as liberator, then as ruler or sovereign of an empire reared within the limits of these countries.

In the autumn of 1806, active preparations began for the contemplated expedition. Blennerhassett had embarked his fame and fortune in the enterprise of Burr. Boats were constructed and freighted with supplies and munitions of war, and December 10, 1806, under cover of darkness, the flotilla left the island and began the descent of the Ohio. The next morning a body of Virginia troops, under the command of Captain Hugh Phelps, occupied the island, taking military possession, and Mrs. Blennerhassett and her children left it never to return. The mansion was greatly damaged and was destroyed by fire in 1812. Burr and Blennerhassett were both arrested and taken to Richmond, where they were confined in the state prison. Burr was tried on a charge of treason and acquitted. Blennerhassett was released without trial. The family was ruined. Blennerhassett died on the island of Guernsey in 1831, and the wife some years later in New York City.

When the Second War with Great Britain came, Western Virginians were ready, and from the summits of the Alleghenies to the Ohio, men strapped their knapsacks, shouldered their arms, mounted their horses, and turned their faces from home. In a fortnight after the call to arms, fifteen thousand men were encamped in sight of Richmond. Among them the largest number of cavalrymen that, up to that time had ever assembled on the soil of Virginia;—the greater part of them being horsemen from the west side of the Blue ridge. There were too many, and in one evening a thousand were discharged and ordered home. On their way over the Blue Ridge they met whole companies still marching to the eastward. Not only this, but whole companies went from the Ohio Valley counties to serve with General Harrison on the banks of the Maumee and in the Northwest. So, too, whole companies from West Virginia did valiant service in the war with Mexico.

The intelligence that went out from Harper's Ferry on the 17th of October, 1859, sent a thrill of terror throughout Virginia and astonished

the nation. John Brown was in possession of the town, and the whole world knows the result. It was but the muttering that precedes the storm. The next year found the people of Virginia, all the way from the Chesapeake to the Ohio, in a state of the wildest commotion—a condition, perhaps, unexampled in history unless it be France in the early days of the French Revolution.

FORMATION OF THE STATE.

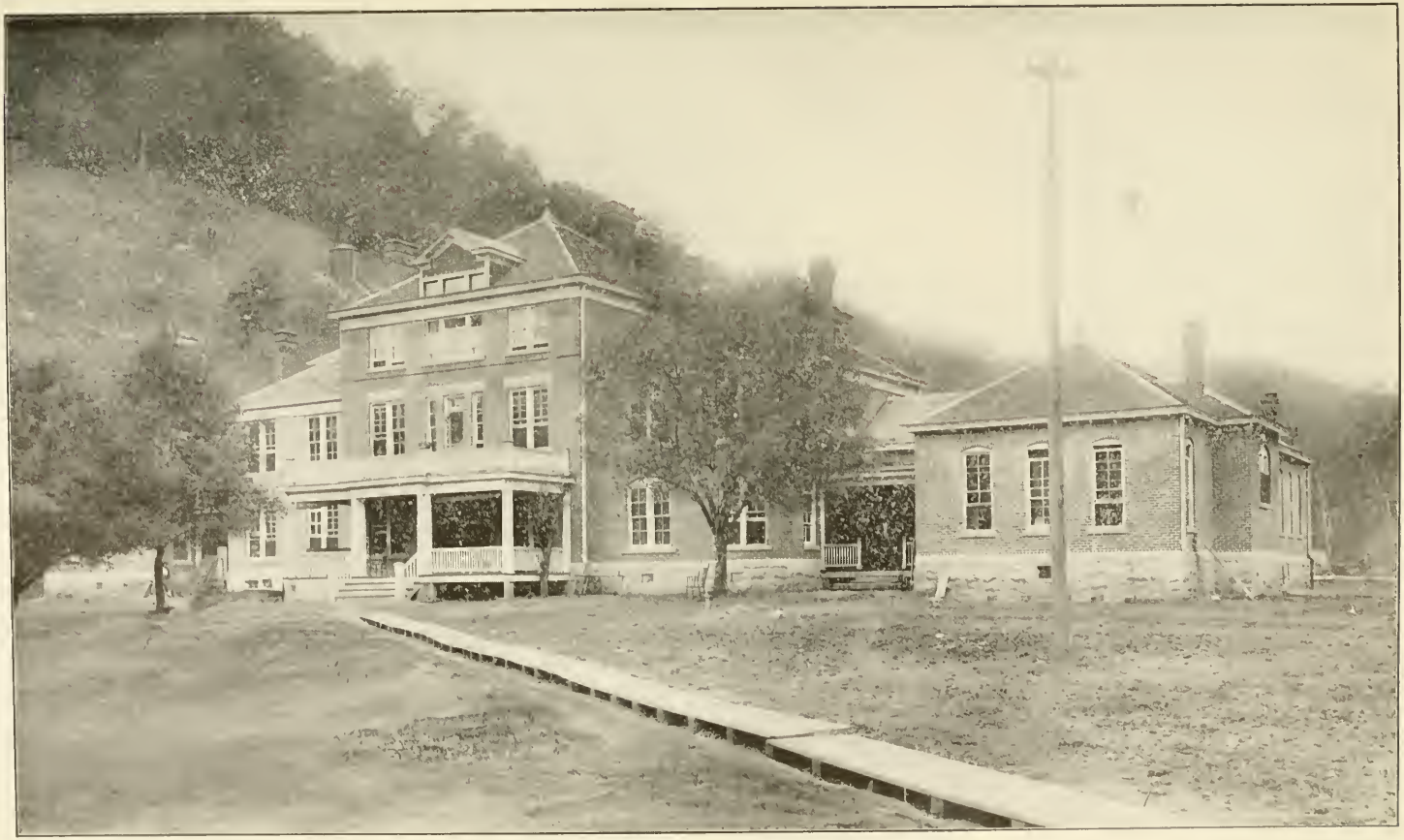
All was haste and confusion and Governor John Letcher, influenced by the pressure of the times, issued a proclamation convening the General Assembly in extra session, January 7, 1861. Seven days later it passed an act providing for a convention of the people of Virginia, which body was to consist of one hundred and forty-two members. These were elected on the 4th of February, 1861, and in Wednesday the 13th ensuing, the convention assembled in the old State House at Richmond. John Janney, a delegate from Loudon county, was elected President, and John L. Eubank, of the city of Richmond, Secretary. On the 17th of April, the Ordinance of Secession was passed. Of the forty-six delegates in that convention from the territory now embraced in West Virginia, twenty-nine voted against it, nine for it, seven were absent, and one excused.

Before adjournment it was provided that the people should at the general election for State and County officials—May 23rd—vote upon the question of ratification or rejection of this ordinance. Upon this, the two sections of the State—the East and the West—were arrayed against each other; a large majority in the former favoring ratification, while in the latter an equally large number were opposed to it. In the early part of this year, meetings of the people were held in several counties of the State, among them being Monongalia, Mason, Jackson, Wood, Ohio, Taylor, Brooke, Hancock, and Marshall; but the call for united action came from Clarksburg in Harrison county—the birth-place of Stonewall Jackson—where on the 25rd of April, 1861, twelve hundred citizens of that county assembled in the court house, and by resolution recommended to all the people of Northwestern Virginia, the appointment of delegates, not less than five from each county, of their "wisest, best, and discretest" men, to meet in convention at

Wheeling on the ensuing 13th of May. To this call there was prompt response.

THE FIRST WHEELING CONVENTION.

Days passed away and on Monday morning, May 13th, what is known as the "First Wheeling Convention" assembled in Washington Hall in that city, and the Committee on credentials found present four hundred and twenty-five delegates representing twenty-five counties as follows; that is to say: thirty-two from Hancock county; sixteen from Brooke; thirty-eight from Ohio; sixty-nine from Marshall; twenty-one from Wetzel; eleven from Tyler; eleven from Harrison; four from Pleasants; seventy from Wood; thirty-eight from Monongalia; fourteen from Preston; seven from Jackson; sixteen from Marion; thirty from Mason; two from Upshur; three from Wirt; four from Ritchie; five from Hampshire; three from Barbour; five from Doddridge; three from Berkeley; one from Roane; seven from Lewis; ten from Tyler; and five from Wayne. Chester D. Hubbard of Ohio county, called the meeting to order, and on his motion, William B. Zinn, of Preston county, was made temporary President, and George R. Latham, of Taylor county, was appointed temporary secretary. Rev. Peter G. Laishley, a delegate from Monongalia, offered prayer and asked divine guidance in the work of the convention. A Committee on Permanent Organization was then appointed and in the afternoon it reported as follows: For president, John W. Moss, of Wood county; for secretaries, Charles B. Waggener, of Mason county; Marshall M. Dent, of Monongalia county; and J. Chandler of Ohio county. The usual committees were appointed and as the work progressed, it was found that the convention was divided. With some the New State idea was uppermost and they had inscribed upon their banners, "New Virginia, Now or Never." These were determined to at once adopt a constitution, form a government for the counties represented, and fill all the offices by appointment. But others saw the revolutionary character of this action, and urged that as the people had not yet voted on the Ordinance of Secession, Virginia still had a government recognized by the Constitution of the United States. Debate ran high. This was interrupted by the report of the Committee on Resolutions, of which Campbell Tarr, of Brooke county, was chairman. It was a skillful blending of all opinions, and recommended that in case of the ratification of the Ordinance of Secession, all counties there represented and as many others as choose to do so, should on the 4th of the ensuing June, appoint delegates to a general convention to assemble on the 11th—one week later—in Wheeling.



MINERS' HOSPITAL NO. 1—Welch, McDowell County—(See p. 65).

It was provided that all members elected to the General Assembly on the 23rd day of May—that upon which the people were to vote upon the Ordinance of Secession—should be members of the proposed convention, and that each county should elect to it as many delegates as were equal to twice its representation in the Assembly. This report elicited but little discussion and was adopted with but two dissentient voices. Then a Central Committee was appointed as follows: John S. Carlisle, James S. Wheat, Chester D. Hubbard, Francis H. Pierpont, Campbell Tarr, George R. Latham, and James Paxton. Then a prayer was heard amid the silent multitude; after which a thousand voices united in singing the "Star Spangled Banner" and the convention adjourned.

THE SECOND WHEELING CONVENTION.

Meantime the election of May 23rd, came on; the Ordinance of Secession was ratified by a large majority, but of the 44,000 votes cast that day within the present limits of West Virginia, 40,000 were against it. Accordingly, on the 4th of June following, delegates were appointed and one week thereafter—June 11th—what is known as the "Second Wheeling Convention," assembled in Washington Hall. There were ninety-three members, of whom thirty-three—three senators and thirty members of the lower House—had been chosen at the election of the 23rd of May preceding, to seats in the General Assembly; and sixty had been appointed on the 4th of June as delegates to this Convention. Eight counties—Cabell, Randolph, Hardy, Gilmer, Kanawha, Tucker and Fairfax and Alexandria (the last two down on the Potomac opposite Washington) were represented in this Convention that had no representation in the first one; and Berkeley county, that was represented in the first, had no representation in the second. Thus, of the counties now in West Virginia, thirty-one had part in this Convention.

Arthur I. Boreman, of Wood county, was elected President, and Gibson Lamb Cranmer, of Ohio county, was chosen Secretary. A committee on Order of Business was appointed; it was composed of William Copley, of Wayne county; D. D. T. Farnsworth, of Upshur; George McPorter, of Hancock; Daniel Frost, of Jackson; C. H. Caldwell, of Marshall; Daniel Polsley, of Mason; Ralph L. Berkshire, of Monongalia; Peter G. Van Winkle, of Wood; Harrison Hagans, of Preston; Francis H. Pierpont, of Marion; Daniel Lamb, of Ohio; and John S. Carlisle, of Harrison. To this, the President was added. Three days thereafter this committee reported.

"A DECLARATION OF THE PEOPLE OF VIRGINIA REPRESENTED IN CONVENTION AT THE CITY OF WHEELING, JUNE 13, 1861."

This was unanimously adopted on the 16th of June. It reviewed the action of the Richmond Convention and asserted that the offices of all who adhered to it, whether executive, legislative, or judicial, were thereby vacated. On the 14th of June, the Convention began the work of reorganizing the government of Virginia, and that day reported:

"AN ORDINANCE FOR THE REORGANIZATION OF THE STATE GOVERNMENT.

This was adopted on the 19th ensuing without a dissenting voice. It ordained that a governor, a lieutenant-governor, and attorney-general for the State of Virginia should be appointed by this Convention; that a Council of five members should be similarly appointed to consult with the governor respecting matters pertaining to his official duties; and that the General Assembly, composed of members elected at the late election—May 23rd—should convene in Wheeling on July 1st ensuing. On the 20th the Convention unanimously elected Francis H. Pierpont of Marion county, chief executive under the restored government; and James S. Wheat, of Ohio county, attorney-general. Then, Peter G. Van Winkle, of Wood county; William Lazier, of Monongalia county; William A. Harrison, of Harrison county; and J. T. Paxton, of Ohio county, were chosen members of the governor's council. By another ordinance adopted June 24th, the Assembly, at its meeting in July was required to appoint the Auditor of Public Accounts, a Treasurer, and a Secretary of the Commonwealth. On the 26th of June, the Convention, having thus provided for the reorganization of the State's government, took a recess until Tuesday the 6th of the ensuing August.

THE MEETING OF THE GENERAL ASSEMBLY.

In compliance with the ordinance of the Convention, the General Assembly began its session in the custom house at Wheeling on the first day of July, and that day the "Reorganized Government of Virginia began its existence. Thirty-one members were present. Both branches were organized, and then the Governor's message was received. It reviewed the action of the first and second Wheeling Conventions, and the steps taken in the reorganization of the government of the commonwealth. On the 9th of July the Assembly elected L. A. Hagans, of Preston county, Secretary of the Commonwealth; Samuel Crane, of Randolph county, Auditor of Public Accounts; and Campbell Tarr, of Brooke county, Treasurer. Then

it proceeded to an election of United States Senators, and this resulted in the choice of John S. Carlisle, of Harrison county; and Waitman T. Willey, of Monongalia county, as the successors of R. M. T. Hunter and James Mason, who had resigned their seats in that body; and they, together with the members elect of the lower House, from the west side of the mountains—William G. Brown, of Preston county, in the old Tenth Congressional District; Jacob B. Blair, of Wood county, in the Eleventh District; and Kellian V. Whaley, of Wayne county, in the Twelfth District—proceeded to Washington, where they were admitted to seats in the respective Houses, as Senators and Representatives from Virginia under the Reorganized Government. The Assembly, having completed its work, adjourned on the 24th of July. There were now two governments on the soil of Virginia—the Old State Government at Richmond, recognizing the Supremacy of the Confederate Government; another, the Reorganized Government, with its capital at Wheeling and owning and paying allegiance to the National Government.

THE SECOND MEETING OF THE SECOND WHEELING CONVENTION.

This body, which on the 26th of June, took a recess until the 6th of August, reassembled on the latter date and at once entered upon its one duty—that of preparing the way for the formation of a new State. On the 20th it adopted

"AN ORDINANCE TO PROVIDE FOR THE FORMATION OF A NEW STATE OUT OF A PORTION OF THE TERRITORY OF THIS STATE."

By its provisions the question of the creation of a new State to be called Kanawha, was submitted to the people of thirty-nine counties, and to those of as many others as chose to vote upon it; at an election to be held on the 24th of October, 1861. At the same time a separate poll was taken for the election of delegates whose duty it should be, in case a majority was in favor of the new State, to assemble in convention in Wheeling, on Tuesday the 26th of November, 1861, for the purpose of framing a constitution for the proposed State, the name of which was, by the convention, changed from Kanawha to West Virginia. The vote stood 18,489 for the new State, and 781 against it. Governor Pierpont made proclamation of the result and the Constitutional Convention assembled on the date fixed therefor, in the Federal court room at Wheeling. A permanent organization resulted in the election of John Hall, of Mason county, as President; Ellery R. Hall, of

Taylor county, Secretary; and John C. Orr, of Ohio county, as Sergeant-at-Arms. The body completed its work and adjourned February 18, 1862, after having prepared a schedule by which a vote upon the question of ratification or rejection of the proposed constitution should be taken on the 11th of April ensuing. The vote stood 18,162 for ratification, and 514 for rejection; then the governor again made proclamation, declaring that the constitution had been adopted as the fundamental law of the new State.

THE GENERAL ASSEMBLY IN SESSION AGAIN.

When it was known that the constitution had been adopted, Governor Pierpont, by proclamation, reconvened the General Assembly of the Reorganized Government, on the 6th of May, 1862, in Wheeling, where it, on the 12th ensuing, passed an act giving its consent for the erection of a new State within the jurisdiction of Virginia.

THE NEW STATE SEEKING ADMISSION INTO THE UNION.

Interest now centered in Washington city. Here there was much delay caused by the failure of the Constitution to provide for the abolition of slavery in the new State. But, at length, an agreement was reached, by which a bill admitting the State was passed, but with a provision that the Constitution should be referred back to the people, and when so amended as to provide for the gradual extinction of slavery, thus meeting the requirements of Congress, the same should be certified to the President who should make proclamation thereof, and sixty days thereafter, the act should be in full force, and the State be a member of the Union. The final vote on the bill, in the Senate, stood yeas, 23; nays, 17—a majority of but six votes. In the House the yeas were 96, and the nays 55—a majority of forty-one votes.

When the bill went to President Lincoln for his approval, he requested the opinion of each member of his cabinet respecting it. There were then seven of these; Secretary Harlin was out of the city, but the other six responded. It appeared while Seward, Chase and Staunton recommended its approval, Wells, Blair and Bates opposed it. With his advisers thus equally divided, the President jocosely remarked that this only demonstrated an idea that he had entertained for some time, viz: that "A President is as well off without a cabinet as with one." He held the bill for several days, but on the 31st of December, 1862, he saw Jacob B. Blair, one of the members of Congress from a district within the proposed State and told him to call at the White House next morning and receive a "New Years'

MINERS' HOSPITAL NO. 2—McKendree, Fayette County—(See p. 65).

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Gift." The congressman, who had been untiring in his efforts to secure the success of the measure, prompted by impatience and anxiety, called at an early hour—before the doors were open—and the president meeting him at a window, exhibited the bill admitting West Virginia, with his signature attached, and remarked: "Here is the New Years' gift I promised you."

Speedily President Hall issued a call reconvening the Convention which had framed the Constitution, and it met in Wheeling on the 12th of February, 1863. Mr. Hall could not be present and A. D. Soper, of Tyler county, was chosen to preside. The Constitution was speedily changed so as to meet the requirements of Congress; an address to the people prepared; March 26, 1863, fixed as the date of the vote on the revised Constitution and the Convention adjourned. The election showed a majority of 17,000 for ratification. The result was certified to President Lincoln and he, in compliance with the act of Congress admitted the State, issued his proclamation on the 20th of April, and when, therefore, the sixty days had expired, West Virginia began her career as a member of the Federal Union. On the 9th day of May preceding the termination of the sixty days specified in the President's proclamation, a State Convention met at Parkersburg for the purpose of nominating candidates to be voted for as officers of the new State. These were as follows: For Governor, Arthur I. Boreman, of Wood county; Auditor, Samuel Crane, of Randolph county; Treasurer, Campbell Tarr, of Brooke county; Secretary of State, Edgar Boyers, of Tyler county; Attorney- General, A. Bolton Caldwell, of Ohio county. For Judges of the Supreme Court of Appeals, the nominees were Ralph L. Berkshire, of Monongalia county; William A. Harrison, of Harrison county; and James H. Brown, of Kanawha county. All were elected without opposition, on Thursday the 28th of the same month. When the 20th of June arrived, the new State government was put into operation and West Virginia began that splendid career of which all her people are now so proud. At the same time the new State officers were elected—May 28, 1863—Francis H. Pierpont, at the head of the Reorganized Government, was voted for and elected Governor of Virginia for a term of three years beginning January 1, 1864, and at the same time the new State government began, he transferred the seat of the Reorganized Government to Alexandria on the Potomac, where its jurisdiction was confined within narrow limits, until May 25, 1865, when with Governor Pierpont still at its head, it was removed to Richmond, and its authority extended throughout Virginia, the old State government having ceased to exist.

THE STATE GOVERNMENT.

West Virginia was admitted into the Union, June 20, 1863. Its motto is *Montani semper Liberi*—"Mountaineers are always free." It is known as the "Pan-Handle State"; often called the "Little Mountain State"; frequently referred to as the "Switzerland of America" and some times styled the "Loyal Highlands." It embraces fifty-five counties, which are sub-divided into Magisterial Districts which are equivalent to townships in many other states. No county can contain less than three nor more than ten. The powers of government reside in all the citizens of the State and can be rightfully exercised only in accordance with their will, and appointment. "The Bill of Rights" declares that all power is vested in, and consequently derived from the people, and guarantees the right of the citizens to be secure in their houses, papers and effects against unreasonable searches and seizures.

The present Constitution of West Virginia was framed by a convention which assembled in Charleston, January 16, 1872 and finished its work on the 9th of April ensuing; it was ratified by the people on the fourth Thursday in August and superceded the constitution of 1863. It has been amended as follows, that is to say: Section 13 of Article III. and Section 7 of Article IV., in 1883; Article VIII., in 1879; Section 12 of Article IV., Sections 2, 3, 4, 17 and 19 of Article VII., Sections 2 of Article VIII., and Section IV, of Article XII., in 1902.

This Constitution, thus amended, has been the organic law of the State for thirty-two years. It is the measure and test of all laws passed by the Legislature, and these laws must stand or fall by their agreement or disagreement with it. The Constitution is not a lengthy instrument but it is the most important State paper. It contains a brief statement of the fundamental principles of civil and individual liberty; contains the "Bill of Rights"; creates the different departments of government—executive, legislative and judicial—and prescribes the duties and powers of each; establishes an educational system; provides for county organization; regulates taxation; defines land titles; and prescribes the rights of citizenship.

The right to vote is given to every citizen twenty-one years of age and a resident of the State one year and of the county in which he offers to vote sixty days prior to such action. But no person who is a minor,

or of unsound mind, or a pauper, or who is under conviction for treason, felony or bribery in an election, is permitted to vote. The legislature is required to enact proper laws for the registration of voters in the State. The rights of citizenship depend upon age, residence, and previous citizenship. All persons who are born in and continue to reside in the State are citizens thereof; a citizen of any other State of the United States becomes a citizen here by changing his residence from that to this; a citizen of a foreign country can make himself a citizen here by becoming a resident; declaring before a proper tribunal his purpose to become a citizen, and taking the prescribed oaths of allegiance.

DIVISION OF POWERS.

The Legislative, Executive and Judicial Departments are declared to be separate and distinct, so that neither shall exercise the powers properly belonging to others.

THE LEGISLATIVE DEPARTMENT:—The law-making body is styled the Legislature; it consists of two branches called respectively the Senate and the House of Delegates.

The Senate is composed of thirty members elected for a term of four years, but one-half of them are chosen biennially and they are thus divided into two classes, so that in every session there are one-half hold-over senators, while the other half is composed of newly elected members. A majority of the members constitutes a quorum. A Senator must be twenty-five years of age; must have been a resident of the State five years, and of the senatorial district from which he is chosen. The Senate elects its own officers; punishes its members for disorderly conduct; confirms or rejects nominations of the governor; originates bills and performs legislative functions; passes, amends or rejects bills originating in the House; and acts as a Court of Impeachment for the trial of high public officers. The presiding officer is styled the President.

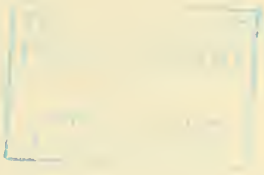
The House of Delegates:—The Lower House consists of eighty-six members, there being now no county in the State which is not entitled to at least one delegate. They are elected for a term of two years, the entire number being chosen biennially. It elects its own officers—chief of which is the Speaker; punishes its own members for disorderly conduct; originates bills and performs legislative functions; passes, amends or rejects bills originating in the Senate; and prepares articles of impeachment and prosecutes impeachment proceedings before the Senate.

THE LEGISLATURE (The Senate and House Jointly):—Sessions are

held biennially convening on the second Wednesday of each odd year. The length of the regular session is forty-five days. The body may itself extend the session by a three-fourths vote of the Houses jointly; the Governor may convene it, at his pleasure, by proclamation, whenever in his opinion the public welfare requires it; or, it is made his duty to do this on the application in writing of three-fifths of the members elected to both Houses. A majority of the members of each House constitutes a quorum. It enacts laws and adopts resolutions, joint or otherwise; passes bills after the Governor's disapproval, by a majority vote; elects United States Senators; counts votes and declares results of State elections. The enacting clause is *"Be it enacted by the Legislature of West Virginia."* The compensation is four dollars per day during sessions, with ten cents mileage to and from the seat of government. On convening, the oldest member in point of service calls his respective House to order and presides over it until the elective officers have been chosen and have taken their seats. Each member before entering upon his duties, subscribes to the following oath or affirmation: "I do solemnly swear (or affirm) that I will support the Constitution of the United States, the Constitution of the State of West Virginia, and faithfully discharge the duties of Senator (or Delegate) according to the best of my ability." Then each takes this further oath: "I will not accept or receive, directly or indirectly, any money or other valuable thing from any corporation, company, or person, for any vote or influence I may give or withhold, as Senator (or Delegate) on any bill, resolution or appropriation, or for any act I may do or perform as Senator (or Delegate)."

Members of the Legislature are, in all cases except treason, felony, or breach of the peace, privileged from arrest during the session, and for ten days before and after the same; and for words spoken in debate on any report, motion or proposition made in either House, they cannot be questioned in any other place.

The Executive Department:—The Executive Department consists of a Governor, Secretary of State, Superintendent of Free Schools, Auditor, Treasurer and Attorney-General. The terms of all are four years and these begin on the 4th day of March after their election. The returns of every election for these officers are required to be sealed and sent by the election officers to the Secretary of State, directed to the 'Speaker of the House of Delegates," who shall, upon the organization of the Legislature, in the presence of a majority of each House assembled for that purpose, open and publish the result of the election as shown by these returns. The



MINERS' HOSPITAL NO. 3—Fairmont, Marion County—(See p. 65).

Governor, being at the head of this Department, is called the Chief Executive of the State. Contested elections for his office are determined by both Houses of the Legislature by joint vote, in such manner as may be prescribed by law. His salary is $5,000; he must be thirty years of age and is not eligible to re-election. In case of death or resignation, conviction on impeachment, or failure to qualify, his legal successor is the President of the Senate. He is commander-in-chief of the State military establishment; convenes the Legislature in extra session; approves or disapproves all acts of the Legislature; fills vacant State offices by appointment; signs commissions of State officers and issues certificates; grants pardons and reprieves for offenses against the State on the recommendation of the Pardoning Board; appoints civil and military officers; boards of directors, and regents, by and with the advice of the Senate; and is President of the Board of Public Works.

The following gentlemen have filled the executive chair of the State in the order named:

Arthur Ingraham Boreman, Wood county, from June 20, 1863, to February 26, 1869.

Daniel D. T. Farnsworth,* Upshur county, from February 27, 1869, to March 3, 1869.

William Erskine Stevenson, Wood county, from March 4, 1869, to March 3, 1871.

John Jeremiah Jacob, Hampshire county, from March 4, 1871, to March 3, 1877.

Henry Mason Mathews, Greenbrier county, from March 4, 1877, to March 3, 1881.

Jacob Beeson Jackson, Wood county, from March 4, 1881, to March 3, 1885.

Emanuel Willis Wilson, Kanawha county, from March 4, 1885, to February 5, 1890.

Arctus Brooks Fleming, Marion county, from February 6, 1890, to March 3, 1893.

William Alex. MacCorkle, Kanawha county, from March 4, 1893, to March 3, 1897.

George W. Atkinson, Ohio county, from March 4, 1897, to March 3, 1901.

Albert Blakesley White, Wood county, from March 4, 1901, to ———

*Hon. Daniel D. T. Farnsworth, as President of the Senate, became Governor upon the resignation of Arthur I. Boreman, (who had been elected to the United States Senate), and served five days.

Of the other executive officers, the Secretary of State is custodian of the State seals; keeps a journal of the executive proceedings; and arranges and preserves all records and State papers belonging to the Executive Department. He is Secretary of the Board of Public Works. His salary is $4,000. The Auditor is the chief revenue officer of the State; he makes settlements with the sheriffs; keeps in his office separate accounts of all the sources from which monies are received, and a general account with the Treasurer upon whom he draws warrants for all disbursements, and no public monies can be paid out except upon his warrant; receives and audits statements of railroad officials of railroad property for the purpose of taxation. His salary is $4,000 per annum. The Treasurer has charge of the State's revenues which can only be disbursed on his order. His salary is $2,500 per year. The Attorney-General is the legal adviser of all State officials; construes law and renders opinions regarding its meaning; he is *ex-officio* reporter of the Supreme Court of Appeals. His salary is $2,500 per year. The Superintendent of Free Schools has general supervision of the Public School System; makes report of its condition to the Governor and recommends needed legislation for the improvement thereof. His salary is $3,000. The several executive officers compose the Board of Public Works, which designates what banks shall be depositories of State funds; assesses all railroad property for taxation and has general supervision of the internal improvements. The Board of the School Fund is composed of the Governor, Auditor, and State Superintendent of Free Schools; and the Board of Public Printing, of the Auditor, Treasurer and State Superintendent of Free Schools.

The Judicial Department:—In each magisterial district having a population of less than twelve hundred, one Justice of the Peace is elected; if the population exceeds this number, two may be chosen. The term is four years and the compensation, fees. Jurisdiction extends to misdemeanor cases, and in civil actions for the recovery of money to an amount not exceeding three hundred dollars.

The County Court:—This body is composed of a President and two Commissioners, elected by the people each for a term of six years. The compensation of the former is three dollars per day while employed, and that of the latter, two dollars per day. It has no jurisdiction in the trial of causes. It has the custody through its clerk, of all deeds and other papers presented for record in its county; has jurisdiction in all matters of probate, the appointment and qualification of personal representatives, guardians, committees, and curators and the settlement of their accounts; has

superintendence of the internal affairs of the county, including the establishment and regulation of roads, ways, bridges, public buildings and ferries, with authority to lay and disburse the county levies; its power to grant license for the sale of intoxicating liquors is exclusive; it sits in all cases of contested elections of its own members, and those of all county and district officers.

The Criminal Courts:—There are courts of limited jurisdiction, which the Legislature has authority to establish. Their jurisdiction is confined to criminal actions only, and appeals therefrom lie directly to the Circuit Court. These courts have been created in nine counties, among them being Cabell, Kanawha, Wood, Ohio, Mercer, Marion, Taylor and McDowell counties.

The Circuit Court:—The State is divided into eighteen Judicial Circuits, a judge elected by the people for a term of eight years sitting in each.* He must be of good moral character and learned in the law. His salary is $3,300 per year, and ten cents mileage. The Circuit Court has original jurisdiction of all matters at law where the amount involved exceeds $50, exclusive of costs; of cases of *habeas corpus, quo warranto, mandamus,* and prohibition; of all cases of equity, and of all crimes and misdemeanors. Its appellate jurisdiction extends to all cases, civil and criminal, when an appeal, writ of error or *supersedeas* may be allowed to the judgment or proceedings of any inferior tribunal. It may supervise and control all proceedings before justices and other inferior tribunals by *mandamus,* prohibition, and *certiorari.*

The Supreme Court of Appeals:—This is the Court of last resort—the highest tribunal in the State. It consists of five judges elected for twelve years, the salary of each being $4,500. The terms of the Court—three in number—are held at Charleston, Wheeling and Charles Town, in January, June and August, respectively. It has original jurisdiction in cases of *habeas corpus, mandamus,* and prohibition. Its appellate jurisdiction extends to civil cases in controversy involving a greater amount than $100, exclusive of costs; concerning title or boundary of lands, probate of wills, the appointment or qualification of a personal representative, guardian, committee or curator; concerning a mill, roadway, ferry or landing; in cases relating to the right of a corporation to levy tolls or taxes; in cases of *quo warranto,* and all others involving freedom or the constitutionality of a law; in criminal cases where there has been a conviction for felony or misdemeanor in a Circuit Court; in cases relating to the public revenue; and such additional jurisdiction as may be conferred by the Legislature.

*Two Judges are elected in the First or Wheeling District.

STATE AND FEDERAL RELATIONS

West Virginia lies in the Fourth United States Judicial Circuit, and for the purpose of Federal administration, the State is divided into two districts; Hon. John J. Jackson, of Wood county, being the Judge of the Northern District, and Hon. Benjamin F. Kellar, of McDowell county, the Judge of the Southern District.

The State is divided into five Congressional Districts as follows: The First District composed of the counties of Hancock, Brooke, Ohio, Marshall, Wetzel, Marion, Harrison and Lewis; Hon. Blackburn B. Dovener, of Ohio county, Representative. The Second District composed of the counties of Monongalia, Preston, Taylor, Barbour, Tucker, Randolph, Pendleton, Grant, Hardy, Mineral, Hampshire, Morgan, Berkeley and Jefferson; Hon. Alston G. Dayton, of Barbour county, Representative. The Third District composed of the counties of Kanawha, Fayette, Summers, Monroe, Greenbrier, Nicholas, Clay, Webster, Pocahontas and Upshur; Hon. Joseph H. Gaines, of Kanawha, Representative. The Fourth District composed of the counties of Tyler, Pleasants, Wood, Jackson, Roane, Braxton, Gilmer, Calhoun, Wirt, Ritchie and Doddridge; Hon. Harry C. Woodyard, of Roane county, Representative. Fifth District composed of the counties of Mason, Putnam, Cabell, Lincoln, Wayne, Boone, Logan, Mingo, Raleigh, Wyoming, McDowell and Mercer; Hon. James A. Hughes, of Cabell county, Representative.

WEST VIRGINIANS WHO HAVE HELD CABINET POSITIONS.

Three citizens of West Virginia have held cabinet positions. The first of these was General Nathan Goff, of Harrison county, who was nominated by President Hayes, January 6, 1880, to be Secretary of the Navy, and the Senate confirmed the nomination the following day. In December, 1891, President Harrison sent to the Senate the name of Stephen Benton Elkins, of Randolph county, whom he had appointed Secretary of War, and the Senate speedily confirmed the appointment. On March 1, 1895, William Lyne Wilson, of Jefferson county, received his commission as Postmaster-General of the United States, having been appointed by President Cleveland and the Senate having concurred therein.

ADMINISTRATION BUILDING, THE WEST VIRGINIA REFORM SCHOOL FOR BOYS—Pruntytown, Taylor County—(See p. 67.)

POPULATION.

The following tabulation shows the population of West Virginia by decades for one hundred and ten years, that is from 1790 to 1900 inclusive. At the time of taking the census of 1860, as well as at preceding dates, the counties now in West Virginia and then existing, were included in Virginia, but their populations have been separated for each ten years prior to the formation of West Virginia, so as to make the following totals for the eleven decades or twelve enumerations:

Decennial Enumerations.

In the year 1790 it was 55,873.
In the year 1800 it was 78,595.
In the year 1810 it was 105,469.
In the year 1820 it was 136,768.
In the year 1830 it was 176,924.
In the year 1840 it was 224,537.
In the year 1850 it was 302,313.
In the year 1860 it was 376,688.
In the year 1870 it was 442,014.
In the year 1880 it was 618,457.
In the year 1890 it was 762,794.
In the year 1900 it was 958,800.

From these figures it is evident that the State's population now exceeds one million.

For four decades, or five decennial enumerations, the center of population was in West Virginia. In 1810, it was at Harper's Ferry, in Jefferson county; in 1820, at Wardensville, in Hardy county; in 1830, it rested on Canaan mountain, in Tucker county; in 1840, it was ten miles due south from Clarksburg, in Harrison county; and in 1850, it was on the south bank the Little Kanawha river, in Wood county.

An Analysis of the State's Population.

It is seen that the total population in the year 1900 was 958,800. Of this number 499,242 were males, and 459,558 females. Divided as to color, there were 915,233 whites, and 43,567 of negro descent. Of the total population, 765,565 were born in and were residents of the State and

193,225 were born outside its limits. Of these, 22,451 were born in foreign countries, and 170,784 were born in other American States as follows; that is to say; 61,508 were born in Virginia; 41,301 in Ohio; 28,927 in Pennsylvania; 10,867 in Kentucky; 9,608 in Maryland; 3,964 in North Carolina; 2,945 in New York; 1,336 in Indiana; 1,021 in Illinois; 980 in Tennessee; 964 in Missouri; 446 in the District of Columbia; 258 in Georgia; 249 in South Carolina; and 4,738 in other States. Of the 22,451 of foreign birth, 6,537 are from Germany; 3,342 from Ireland; 2,921 from Italy; 2,622 from England; 1,125 from Austria; 855 from Scotland; 810 from Hungary; 721 from Russia; 702 from Canada; 696 from Switzerland; 482 from Wales; 317 from Russian Poland; 298 from France; 148 from Asia other than China, Japan and India; 133 from German Poland; 132 from Sweden; 108 from Greece; 92 from Poland (unknown); 91 from Austrian Poland; 79 from Belgium; 60 from Denmark; 47 from China; 27 from Central America; 27 from Bohemia; 23 from Europe not otherwise specified; 22 from Holland; 21 from Australia; 20 from Turkey; 19 from Norway; 11 from the West Indies; 7 from Mexico; 6 from South America; 6 from Finland; 5 from Spain; 3 from India; 2 from Africa; 2 from the Atlantic Islands; 1 from Roumania; 1 from Cuba; 2 from other countries, and 19 were born at sea.

Thus it is seen that of the State's total population 765,565, or 79.8 per cent. are native born; 170,784, or 17.8 per cent. were born in others of the most progressive states of the American Union; while 22,451, or 2.4 per cent. are of foreign birth, by far the greater number coming from the foremost nations of Europe. No other State contains better elements in its population.

THE COUNTIES OF THE STATE.

WHEN AND FROM WHAT FORMED: FROM WHOM OR WHAT NAMED; AREA, POPULATION, AND SEAT OF JUSTICE.

Civil government was first established in West Virginia in the Eastern Pan-Handle, then within the jurisdiction of Spottsylvania county; and secondly, in the Greenbrier Valley within the bounds of Augusta county; the former, east of the Blue Ridge but extending westward across the Shenandoah Valley; the latter lying west of that mountain barrier. But Virginia ever endeavored to keep civil government abreast of her most daring pioneers, and her Assembly created what are now West Virginia counties as necessity seemed to require, and after the formation of the new State, others were created by her Legislature as the demand for this arose. Of the fifty-five counties of the State, fifty were created by Virginia before the division of the State, and five—Grant, Mineral, Lincoln, Summers and Mingo—have been organized since the formation of West Virginia.

THE INDIVIDUAL COUNTIES.

HAMPSHIRE, formed in 1754, from parts of Frederick and Augusta counties, and named from Hampshire, England; the oldest county in the State; area, 620 square miles; population, 11,806; seat of justice, Romney.

BERKELEY, formed in 1772, from part of Frederick county, and named from Norborne Berkeley, Baron de Botetourt, Governor under King George III. in 1768; area, 306 square miles; population, 19,469; seat of justice, Martinsburg.

MONONGALIA, formed in 1776, from the "District of West Augusta," and named from its principal river; area, 360 square miles; population, 10,049; seat of justice, Morgantown.

OHIO, formed in 1776, from the "District of West Augusta," and named from the river Ohio; area, 120 square miles; population, 48,024; seat of justice, Wheeling.

GREENBRIER, formed in 1777, from parts of Montgomery and Botetourt counties, and named from its principal river; area, 1,000 square miles; population, 20,683; seat of justice, Lewisburg.

HARRISON, formed in 1784, from part of Monongalia county, and named from Benjamin Harrison, a Governor of Virginia in 1781, and one of the signers of the Declaration of Independence; area, 450 square miles; population, 27,690; seat of justice, Clarksburg.

HARDY, formed in 1786, from part of Hampshire county, and named from Samuel Hardy, an early member of Congress from Virginia; area, 450 square miles; population, 8,449; seat of justice, Moorefield.

RANDOLPH, formed in 1787, from part of Harrison, and named from Edmund Randolph, a Governor of Virginia in 1787, and afterward Attorney-General of the United States; area, 1,080 square miles—the largest county in the State; population, 17,670; seat of justice, Elkins.

PENDLETON, formed in 1787, from parts of Augusta, Hardy and Rockingham, counties, and named from Edmund Pendleton, President of the Virginia Court of Appeals; area, 650 square miles; population, 9,167; seat of justice, Franklin.

KANAWHA, formed in 1789, from parts of Greenbrier and Montgomery counties, and named from its chief river; area, 980 square miles; population, 54,696; seat of justice, Charleston.

BROOKE, formed in 1797, from part of Ohio county, and named from Robert Brooke, Governor of Virginia, in 1794; area, 80 square miles—the smallest county in the State; population, 7,219; seat of justice, Wellsburg.

WOOD, formed in 1799, from part of Harrison, and named from James Wood, Governor of Virginia in 1796; area, 375 square miles; population, 34,452; seat of justice, Parkersburg.

MONROE, formed in 1799, from part of Greenbrier, and named from James Monroe, Governor of Virginia and President of the United States; area, 160 square miles; population, 13,130; seat of justice, Union.

JEFFERSON, formed in 1801, from part of Berkeley, and named from Thomas Jefferson, a Governor of Virginia and President of the United States; area, 250 square miles; population, 15,935; seat of justice, Charles Town.

MASON, formed in 1804, from part of Kanawha, and named from Stevens Thompson Mason, a distinguished patriot, long a member of the Virginia Assembly, and United States Senator from 1794 to 1803; area, 432 square miles; population, 24,142; seat of justice, Point Pleasant.

CABELL, formed in 1809, from part of Kanawha, and named from William H. Cabell, Governor of Virginia in 1805; area, 300 square miles; population, 29,250; seat of justice, Huntington.

TYLER, formed in 1814, from part of Ohio county, and named from

INDUSTRIAL HOME FOR GIRLS—Salem, Harrison County—(See p. 68).

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John Tyler, Governor of Virginia in 1808, and father of the President of the United States, of that name; area, 300 square miles; population, 18,252; seat of justice, Middlebourne.

Lewis, formed in 1816, from part of Harrison, and named from Colonel Charles Lewis who was killed at the battle of Point Pleasant in 1774; area, 400 square miles; population, 16,980; seat of justice, Weston.

Nicholas, formed in 1818, from part of Greenbrier, and named from Wilson Cary Nicholas, Governor of Virginia in 1814; area, 720 square miles; population, 11,407; seat of justice Summersville.

Preston, formed in 1818, from part of Monongalia, and named from James P. Preston, Governor of Virginia in 1816; area, 650 square miles; population, 22,727; seat of justice, Kingwood.

Morgan, formed in 1820, from parts of Hampshire and Berkeley counties, and named from General Daniel Morgan of the Revolution; area, 300 square miles; population, 7,294; seat of justice, Berkeley Springs.

Pocahontas, formed in 1821, from parts of Bath, Pendleton and Randolph, and named from the Indian princess of that name; area, 820 square miles; population, 8,572; seat of justice, Marlinton.

Logan, formed in 1824, from parts of Giles, Tazewell, Cabell and Kanawha, and named from Logan, an Indian chieftian of the Mingo tribe; area, 443 square miles; population, 6,955; seat of justice, Aracoma.

Jackson, formed in 1831, from parts of Mason, Kanawha and Wood, and named from Andrew Jackson, President of the United States; area, 400 square miles; population, 22,987; seat of justice, Ripley.

Fayette, formed in 1831, from parts of Kanawha, Greenbrier, Nicholas and Logan, and named from General La Fayette; area, 730 square miles; population, 31,987; seat of justice, Fayetteville.

Marshall, formed in 1835, from part of Ohio county, and named from John Marshall, Chief Justice of the United States; area, 240 square miles; population, 26,444; seat of justice, Moundsville.

Braxton, formed in 1836, from parts of Lewis, Kanawha and Nicholas, and named from Carter Braxton, one of Virginia's signers of the Declaration of Independence; area, 620 square miles; population, 18,904; seat of justice, Sutton.

Mercer, formed in 1837, from parts of Giles and Tazewell counties, and named from General Hugh Mercer of the Revolution; area, 400 square miles; population, 23,023; seat of justice, Princeton.

Marion, formed in 1842, from parts of Monongalia and Harrison and

named from General Francis Marion of the Revolution; area, 300 square miles; population, 32,430; seat of justice, Fairmont.

WAYNE, formed in 1842, from part of Cabell and named from General Anthony Wayne of the Revolution; area, 440 square miles; population, 23,619; seat of justice, Fairview.

BARBOUR, formed in 1843, from parts of Lewis, Harrison, and Randolph; named from James Barbour, Governor of Virginia in 1812; area, 360 square miles; population, 14,198; seat of justice, Philippi.

RITCHIE, formed in 1843, from parts of Wood, Harrison and Lewis, and named from Thomas Ritchie, a distinguished Virginia journalist; area, 400 square miles; population, 18,901; seat of justice, Harrisville.

TAYLOR, formed in 1844, from parts of Harrison, Barbour and Marion, and named from General Zachary Taylor, of the Indian Wars, the Mexican War and President of the United States in 1849; area, 150 square miles; population, 14,978; seat of justice, Grafton.

DODDRIDGE, formed in 1845, from parts of Harrison, Tyler, Ritchie, and Lewis, and named from Philip Doddridge, a member of Congress from Virginia; area, 300 square miles; population, 13,689; seat of justice, West Union.

GILMER, formed in 1845, from parts of Lewis and Kanawha, and named from Thomas Walker Gilmer, Secretary of the Navy, who was killed on board the steamer "Princeton" at Mount Vernon in 1844; area, 360 square miles; population, 11,762; seat of justice, Glenville.

WETZEL, formed in 1846, from part of Tyler, and named from Lewis Wetzel, a distinguished frontiersman and Indian scout; area, 440 square miles; population, 22,880; seat of justice, New Martinsville.

BOONE, formed in 1847, from parts of Kanawha, Cabell and Logan, and named from Daniel Boone, the founder of Kentucky; area, 520 square miles; population, 8,194; seat of justice, Madison.

PUTNAM, formed in 1848, from parts of Kanawha, Mason and Cabell; named from General Israel Putnam of the Revolution; area, 320 square miles; population, 17,330; seat of justice, Winfield.

WIRT, formed in 1848, from parts of Wood and Jackson, and named from William Wirt, a distinguished Virginia jurist; area, 290 square miles; population, 10,284; seat of justice, Elizabeth.

HANCOCK, formed in 1848, from part of Brooke, and named from John Hancock, President of the Continental Congress; area, 100 square miles; population, 6,693; seat of justice, New Cumberland.

RALEIGH, formed in 1850, from part of Fayette, and named from Sir

Walter Raleigh; area, 680 square miles; population, 12,436; seat of justice, Beckley.

WYOMING, formed in 1850, from Logan, and named from an Indian word signifying a plain; area, 660 square miles; population, 8,380; seat of justice, Oceana.

PLEASANTS, formed in 1851, from parts of Wood, Tyler, and Ritchie, and named from James Pleasants, Jr., Governor of Virginia in 1822; area, 150 square miles; population, 9,345; seat of justice, St. Marys.

UPSHUR, formed in 1851, from parts of Randolph, Barbour and Lewis, and named from Abel P. Upshur, who was killed on board the steamer Princeton, at Mt. Vernon, in 1844, while serving as Secretary of State; area 350 square miles; population, 14,696; seat of justice, Buckhannon.

CALHOUN, formed in 1855, from part of Gilmer, and named from John C. Calhoun, an American Statesman; area, 260 square miles; population, 10,266; seat of justice, Grantsville.

CLAY, formed in 1856, from parts of Braxton and Nicholas, and named from Henry Clay, an American Statesman; area, 390 square miles; population, 8, 248; seat of justice, Henry.

ROANE, formed in 1856, from parts of Kanawha, Jackson, and Gilmer, and named from Judge Spencer Roane, a judge of the Supreme Court of Appeals of Virginia; area, 350 square miles; population, 19,852; seat of justice, Spencer.

TUCKER, formed in 1856, from part of Randolph, and named from St. George Tucker, an eminent Virginia jurist; area, 340 square miles; population, 13,433; seat of justice, Parsons.

MCDOWELL, formed in 1858 from part of Tazewell, and named from James McDowell, Governor of Virginia in 1843; area, 840 square miles; population, 18,747; seat of justice, Welch.

WEBSTER, formed in 1860, from parts of Nicholas, Braxton and Randolph counties, and named from Daniel Webster, a distinguished American statesman; area, 450 square miles; population, 8,862; seat of justice, Addison.

GRANT, formed in 1866, from part of Hardy county, and named from General U. S. Grant; area, 510 square miles; population, 7,275; seat of justice, Petersburg.

MINERAL, formed in 1866, from part of Hampshire county, and named from the abundance of its minerals; area, 300 square miles; population, 12,883; seat of justice, Keyser.

LINCOLN, formed in 1867, from parts of Cabell, Putman, Kanawha

and Boone, and named from Abraham Lincoln, President of the United States; area, 430 square miles; population, 15,434; seat of justice, Hamlin.

SUMMERS, formed in 1871, from parts of Monroe, Mercer, Greenbrier, and Fayette, and named from George W. Summers, a member of Congress from Virginia in 1841; area, 400 square miles; population, 16,265; seat of justice, Hinton.

MINGO, formed in 1895 from part of Logan county and named from a tribe of Indians—the Mingoes—of which Logan was a famous chieftain; area, 406 3-4 square miles; population, 11,259; seat of justice, Williamson.

From the foregoing it will be seen that Hampshire is the oldest county, and Mingo, the one most recently formed. Randolph is the largest, Brooke the smallest. One is named from a county in England; one from an Indian word signifying a plain; one from an Indian princess; one from an Indian chief; one from an Indian tribe; four from West Virginia rivers; and all the others in honor of distinguished men.

THE STATE'S PUBLIC BUILDINGS AND INSTITUTIONS.

All West Virginians are proud of their Public Buildings and Institutions and well they may be, for many thousands of them still remember that as the State began its existence it was without either—not a public building of any kind within its limits. But they have lived through forty years in which they have seen these buildings and institutions arise after the wreck and ruin of war, Minerva like—full grown,— until they dot every portion of the State's area. Among them are the Capitol buildings, the charitable and humane, the educational, and the penal and reformatory institutions, the list of which is as follows:

The West Virginia Hospital for the Insane, at Weston, in Lewis county.

The Second Hospital for the Insane, at Spencer, in Roane county.

The West Virginia Asylum, at Huntington, in Cabell county.

Miners' Hospital No. 1, at Welch, in McDowell county.

Miners' Hospital No. 2, at McKendree, in Fayette county.

Miners' Hospital No. 3, at Fairmont, in Marion county.

The West Virginia University, at Morgantown, in Monongalia county.

The Preparatory Branch of the University at Montgomery, in Fayette county.

PORCH SCENE AT THE INDUSTRIAL HOME FOR GIRLS—Salem, Harrison County—(See p. 68).

The Keyser Preparatory Branch of the University, at Keyser, in Mineral county.

The West Virginia State Normal School at Huntington, in Cabell county.

Branch of the State Normal School, at Fairmont, in Marion county.

Branch of the State Normal School, at West Liberty, in Ohio county.

Branch of the State Normal School, at Shepherdstown, in Jefferson county.

Branch of the State Normal School, at Glenville, in Gilmer county.

Branch of the State Normal School, at Athens, in Mercer county.

The West Virginia Schools for the Deaf and the Blind, at Romney, in Hampshire county.

The West Virginia Colored Institute, at Institute, Kanawha county.

The West Virginia Penitentiary, at Moundsville, in Marshall county.

The West Virginia Reform School, at Pruntytown, in Taylor county.

The West Virginia Industrial Home for Girls, at Salem, in Harrison county.

The County Farms for the Poor. (One in each county.)

Each and every one of these buildings and institutions has an interesting history, which goes to make up that of the founding and growth of the State, for each marks a step in its growth and development. These we shall here notice briefly except those of an educational character, which will receive attention under the article treating of education.

THE WEST VIRGINIA STATE HOUSE.

By an ordinance of February 19, 1863, under the Reorganized Government, a committee consisting of Daniel Lamb, J. W. Paxton, Peter G. VanWinkle, Ellery R. Hall and E. H. Caldwell, was appointed to secure quarters for the New State Government which was soon to begin its existence. This committee entered into a contract with Reverend R. V. Dodge for the use of the Linsly Institute building in the City of Wheeling. In it the executive offices were located and therein the first Legislature of West Virginia assembled on the morning of June 20, 1863. There on the following morning in the presence of both branches assembled for the purpose, Samuel P. Hildreth, a notary public, administered the oath of office to Arthur I. Boreman, the first Governor of West Virginia. On December 9, 1863, the Legislature, by joint resolution authorized the Governor to rent the Linsly Institute for a State capitol, and this was done annually until April 1, 1870, the rent being fixed at one thousand dollars per annum. On that date the

seat of government was removed to Charleston, where the citizens had erected a little State House at the cost of $71,000. Here it continued until 1876, when it was again located at Wheeling, the people of that city having complied with a promise to erect a State House superior to that at Charleston. In 1877, the question of a permanent seat of government was submitted to the people. Three places—Charleston, Martinsburg and Clarksburg—were named and the one receiving the largest number of votes was, on and after May 1, 1885, to be the capital of the State. Charleston was successful and the State authorities went to work to remodeling and building at that place and the present State House was completed at a total cost of $389,923.58. The frontispiece in this book presents an excellent view of the structure which stands on the Capitol Square facing Capitol street on the north; Dickinson street, south; Washington, east; and Lee, west; its geographical location is 38° 21′ north latitude, and 81° 38′ west longitude. The structure may be said to be of modern architecture, but throughout is a blending of the Roman and Grecian with here and there the Corinthian column on which rests the Doric arch. It is 230 feet in length and surmounted by a tower 194.03 feet high, it being 125.5 feet to the center of the dial of the clock thereon. The central hall extends back from the main entrance 180 feet; while the east and west wings extend in the same direction 130 feet. In the building are 85 rooms, 121 doors and 313 windows. It is heated by natural gas and lighted by electricity. The Capitol Annex, just across Lee street to the west, is among the most substantial and prettiest buildings in the State. It is just now being completed as a cost of $150,000.

In 1863, the State paid $750 rental for a home for the Governor. From that time until 1893—a period of thirty years—the State rented a residence for that purpose, but in this year it purchased a handsome property on Capitol street, almost in front of the State House—now known as the Executive Mansion, and which cost the State $34,000. Such are the Government buildings—the State House, the Capitol Annex, and the Governor's Mansion.

THE WEST VIRGINIA HOSPITAL FOR THE INSANE.

This, the oldest of all the State's institutions, is located at Weston in Lewis county. Before the division of the State, Virginia for many years had two asylums for her insane—one at Williamsburg and the other at Staunton. At length there was a demand for a third one, and on March 22, 1858, the General Assembly passed an act providing for the establishment of

the "Trans-Allegheny Lunatic Asylum." The Governor was required to appoint three commissioners, one from the Shenandoah Valley, and two from that part of the State east of the Blue Ridge, to determine the location of the institution. Three places—Weston in Lewis county, Sutton in Braxton county, and Fayetteville in Fayette county—were designated, and Governor Henry A. Wise appointed a committee to determine which of these was most available. The gentlemen composing it were Thomas Wallace, of Petersburg City; Doctor Clement A. Harris, of Culpeper county, and Samuel T. Walker, of Rockingham county. In June ensuing, these gentlemen crossed the mountains, visited the three sites, and reported to the Governor in favor of Weston. That official then appointed a board of directors, consisting of nine members, the duty of which was to purchase lands and have the necessary buildings erected. This board was composed of William E. Arnold, John Brannon, James T. Jackson, Minter Bailey, R. J. McClandish, Caleb Boggess, Johnson N. Camden, Jacob B. Jackson and Joseph C. Spaulding. The act carried with it an appropriation of $25,000 for the purchase of lands, in quantity not exceeding three hundred acres. In 1860, the Assembly appropriated $50,000 for the work of construction, and in 1861, a similar sum for the same purpose and $10,000 for the support of the Asylum. Work progressed rapidly, but now differences of opinion arose between the people of the eastern and western portions of the State, and by an ordinance of the Virginia Convention in secret session at Richmond, June 28, 1861, it was ordered that all work on the Northwestern Lunatic Asylum be suspended; that no further monies be drawn from the Treasury on that account; and that any surplus of money hitherto drawn, after paying for work done, be returned to the Treasury. At this time, $98,000 had been expended for lands, tools and work on the building, and there was $27,000 of the appropriation in bank at Weston. The Reorganized Government began its existence at Wheeling, July 1, 1861, and the very next day, Governor Pierpont sent John List to Weston under an escort of cavalry from Clarksburg, and he removed the money to Wheeling, where it was placed in bank and afterward used to complete the Asylum building.

On the 17th of July, 1863, the Legislature under the new West Virginia State Government, sent a committee of three, consisting of Honorable D. D. T. Farnsworth, on the part of the Senate, and Honorable L. E. Davidson, of Taylor county, and Honorable Lewis Ballard, of Monroe county, on the part of the House, to visit and report the progress made on the asylum buildings, and make report thereon to the Governor. These gentlemen were at Weston on the 2nd day of September ensuing. In their report they said: "We

found the structure to be of no ordinary character; for extensiveness, quality of material used, and the execution of the work, we have rarely seen it excelled." They stated that an appropriation of a hundred thousand dollars was needed to complete the work. By an act of the Legislature, the new West Virginia Government, November 12, 1863, changed the name to that of "The West Virginia Hospital for the Insane," and prosecuted the work thereon. Meantime, the State was paying the expenses of lunatics confined in county jails throughout its extent. And in 1866, Governor Boreman sent an agent to Williamsburg and Staunton in the old State to ascertain the number of insane persons at these places who had been sent from within this State and the amount claimed at each institution for their support to January 1, 1866. This was found to be $23,700, which was paid and the patients brought to Weston. Such, in brief, was the founding of the State's oldest institution in which 5,760 patients have been received since its beginning, and in which there were 972 on the 30th of September, 1903.

THE SECOND HOSPITAL FOR THE INSANE.

This institution is situated at Spencer in Roane county. In 1885, it was shown to the Legislature that the asylum at Weston was entirely inadequate; that there were within its walls nearly twice as many patients as it was originally intended to accommodate; and that the rapid increase in population made it imperative upon that body to provide additional room for this unfortunate class of our people. A joint resolution was therefore adopted on the 24th of February, raising a committee of four to visit several sites and report on at least three locations to the Governor, as to their fitness of location for a second hospital for the insane. The members of this committee named in the resolution were Doctor A. H. Kuntz, of Lewis county; James Withrow, of Greenbrier county; Joseph Van Metre of Hardy county; and John G. Shilling, of Roane county. The following year these gentlemen, after having gone to various parts of the State, named Alderson, in Monroe county; Mason City, in Mason county; and Charles Town, in Jefferson county. But no one of these places received the prize, for by an act of the Legislature of May 7, 1887, the institution was located at Spencer in Roane county, and $10,000 appropriated to be expended thereon by the Board of Public Works when the court of that county had executed deeds to the State for certain land in the vicinity of Spencer. By act of February 21, 1889, a board of directors of nine members was appointed, and by another act of March 14, 1891, there was appropriated to pay for buildings the sum of $18,393.70 and $15,000 out of the revenues for the ensuing year. Thus was

UNIVERSITY PREPARATORY SCHOOL—Montgomery, Fayette County—(See p. 112.)

established the Second Hospital for the Insane which now has within it about five hundred patients. There are 160 acres of land; the length of the main buildings is 940 feet; height of its tallest steeple, 110 feet; width of building from front portico to rear, 160 feet; and within it are 358 rooms. The cost of the building was $300,000. On an adjacent hill in the rear, 300 feet above the building, is a reservoir which contains 2,400,000 gallons. Another building is now in process of erection which is 60x200 feet, has 44 rooms and the cost of which is $50,000.

THE WEST VIRGINIA ASYLUM.

This institution is located at Huntington in Cabell county. It was established under the title of the "West Virginia Asylum for Incurables" by an Act of the Legislature February 17, 1897. This was, perhaps, the most charitable action ever taken by the State, for it supplied an asylum for the most unfortunate of all the State's people. The public monies can never be expended for a worthier purpose than the support of this institution. The class of persons admitted are epileptics, idiots, incurables, and all persons not insane or violent, who from accident, disease, or bodily infirmity, are deemed to be permanently incapacitated from earning a livelihood, and such incurables as need constant care and attention. Also, all such persons so afflicted who are not charges upon the county in which they are, nor likely to become such, but who may desire to be admitted to such asylum and can pay the actual cost of their maintenance and treatment therein. Many a poor unfortunate has here found a home in which the sorrows and sufferings of life are greatly relieved. The buildings are handsome structures, especially designed for their uses. They have cost the State for construction and equipment, the sum of $304,890.47. By act of 1903, the name of the institution was changed to "The West Virginia Asylum." One hundred and ninety-nine inmates were under treatment here on October 1, 1902.

WEST VIRGINIA MINERS' HOSPITALS.

West Virginia is a busy hive of industry and thousands of her people delve in mines under the hills and mountains, while many others are employed on the railroads engaged in hauling to market the products of her mines, forests, and fields. Accidents occur; often, men in these occupations are injured and the State looks after them. An act of the Legislature of February 24, 1899, declared that: "There shall be established and maintained at the expense of the State, three hospitals to be known as Miners' Hospitals, and located as follows: One in the Flat-Top coal region, to be

known as Miners' Hospital No. 1; one in the New River coal region, to be called Miners' Hospital No. 2; and one in the Fairmont coal region to be designated Miners' Hospital No. 3." All were speedily located, the first at Welch in McDowell county; the second at McKendree in Fayette county; and the third at Fairmont in Marion county. It is made the duty of the Board of Directors to admit into them and to treat free of charge, any person who has been injured as a passenger on, or an employee of a railroad or otherwise injured by a railroad train, or injured or hurt in a coal mine or in the coal business; and it may, when there is room in such hospitals, treat any other person who has been injured or hurt, at the actual cost of treatment; but in all cases where said hospital may be insufficient to accommodate all those who may apply for admittance, preference shall first be given to the coal mine and railroad employee, or other laborer hazardously employed, who has been injured in or about his employment." The bill carried with it $15,000 for each of these hospitals. The State has, thus far, expended $125,000 on them for erection of buildings and equipment. Each is managed by a Board of four directors appointed by the Governor. During the year 1902, six hundred and ninety-nine persons were admitted to these hospitals.

THE WEST VIRGINIA PENITENTIARY.

We have said that when West Virginia began her existence she was without public buildings or institutions of any kind. There was no State prison and those convicted of crime were confined in county jails and on December 7, 1863, when the State was but six months old, the Legislature appropriated $1,500 to defray their expenses therein. Twelve days before, that body had authorized the Governor to have all prisoners convicted under the Reorganized Government, or under the Government of this State, removed to the Penitentiary of any other State with the authorities of which he could make a satisfactory arrangement for their safe keeping. By another act passed in 1864, he was directed to have all persons convicted of felony confined in the jail of Ohio county, until otherwise provided by law, and therein he was to make provision for their safe keeping, employment and discipline. He had power to appoint a board of directors consisting of three members and a superintendent of this institution whose salary should not exceed $1,000. In February, 1865, the Legislature authorized the Governor to expend $500 for iron bedsteads for that part of the Ohio county jail then being used as a Penitentiary; and the commissioners of the county were authorized to employ two guards for this prison, the com-

pensation of these, not to exceed $2,000, to be paid by the State. By an act passed February 19, 1866, the Board of Public Works was directed to select a site for a penitentiary, at or near Moundsville in Marshall county; to there purchase land, in quantity not less than ten acres; to appoint a board of directors which in time would appoint a superintendent who was to enclose the grounds and make preparation to put the convicts, then confined in the Ohio county jail, at work on the building, under proper guards. Fifty thousand dollars with which to commence work, was appropriated by this act. Such was the beginning of the State's great penal institution, within the walls of which 942 inmates are now confined. Of this number, 350 are Federal prisoners who are taken care of by this institution under a contract with the National Government, and 592 belong to the State of West Virginia. This is one convict for every 1,618 of the State's population. The educational feature of the prison is a most remarkable one. There are night schools six evenings in the week with about one hundred prisoners in attendance. This work is in charge of competent instructors, thoroughly classified, and it is the hope of the management never in the future to permit any one to leave the institution without at least being able to read and write. There are 6,876 volumes in the library.

THE WEST VIRGINIA REFORM SCHOOL.

By an act of the Legislature passed February 11, 1889, "The West Virginia Reform School," was established. The Governor was required to appoint a commission to select a location; said commission to be composed of Honorable Benjamin S. Morgan, State Superintendent of Free Schools, and one member from each of the four congressional districts of the State. In compliance with this he appointed Albert A. Franzheim, J. P. Scott, W. J. Shanklin and Lindsey Merrill. This commission visited Wheeling, Kingwood, Keyser, Morgantown, Buckhannon, Clarksburg, Parkersburg, St. George and Pruntytown. The last named place was selected as the site. Taylor county, in which it is situated, donated the old court house and other buildings and the people gave five thousand dollars. Then a board of directors was appointed; a farm of one hundred and twenty-seven acres purchased; and C. C. Showalter elected principal on the 12th of May, 1890. The first inmate was admitted on the 21st of July ensuing. The persons eligible for commitment to instruction in the institution are boys under the age of sixteen years, whose natures are yet susceptible to good impressions and who may be influenced to a better life by moral training and a proper discipline. The law provides that boys may be committed by a justice of the

peace of any of the counties of the State, on complaint and due proof made to him by the parent, guardian or next friend of such minor, that by reason of incorrigible or vicious conduct, such minor has rendered his control beyond the power of such parent, guardian, or next friend, and has thus made it manifestly requisite that from regard for the morals and future welfare of such minor, and the peace and order of society, he should be placed in the Reform School. So, too, when any boy under sixteen years of age shall be convicted of felony in any of the Courts of the State, the Judge thereof, in his discretion, and with reference to the character of the Reform School as a place of reform and not of punishment, may cause him to be committed thereto instead of sentencing him to the Penitentiary.

Care is taken to give the 300 inmates useful instruction and correct moral training, and five teachers are employed for this purpose. The work of the Institution has been most valuable to them, honorable to the management and useful to the State. The new administration building is among the finest in the State.

THE WEST VIRGINIA INDUSTRIAL HOME FOR GIRLS.

This institution was created by act of the Legislature, February 18, 1897. It is situated on an eminence at Salem, in Harrison county; the people of that town having donated the land. The location presents a beautiful appearance to all travelers on the Baltimore and Ohio Railroad, the local trains on which stop at the Industrial Home Station. The Institution, but recently established, has, as yet, not quite a hundred inmates, who are admitted under a provision of law similar to that providing for the admission of boys into the Reform School. The discipline is gentle and homelike and marked improvement speedily follows admission. The Home is in no sense a prison. No windows are screened, except in a few rooms at the back of the wing, which are used for incorrigibles and for new girls inclined to run away. With the exception of the first month, no money has been expended for rewards. The inmates soon learn to love the Home and are as happy a set of girls as you would find anywhere, and would not run away if given an opportunity. The work is done in routine and the girls have regular hours for work and recreation. They are dressed in uniforms, that being the most economical and suitable, consisting of blue calico dresses with gingham aprons for work and white aprons for school, their necks arranged with colored ribbons or white ties to suit the individual taste of the girl.

THE WEST VIRGINIA UNIVERSITY—The Armory—(See p. 108.)

COUNTY POOR FARMS.

The Great Master, when on earth, said to the murmuring Judas: "The poor ye have always with you." The saying is ever true in earthly conditions. The physicially and mentally infirm—the unfortunates are present in all countries. For her poor, West Virginia makes comfortable provision of shelter, food, clothing, and medical attendance. Her alms houses may not be palaces, but they are not prisons nor places of cruelty. These Farms are owned by the several counties, buildings supplied, a practical farmer employed by the County Court, and the destitute who are unable to earn a living are cared for there. West Virginia has a frugal population and the industry of her people diminishes extreme poverty. Here crime and pauperism alike are reduced to a minimum by the prevalence of sobriety, intelligence and piety, virtues that when observed in practical life alike preclude criminal action and pauperized conditions.

TAXATION AND FINANCE.

Once West Virginia was poor, now she is rich—made so by the wealth creating industry and energy of her people, the safe and conservative administration of her fiscal affairs, and the marvelous development of her vast natural resources. All her people are very proud of this prosperity for many thousands of them yet living well remember when there was none of this for she commenced her career as a moneyless State. On July 1, 1861, when the Reorganized Government began its existence, Governor Pierpont took possession of a vacant room in the custom house in Wheeling. There was no furniture; a janitor brought in a table and some chairs; some one brought pens, ink and a quire of paper, and thus the Reorganized Government began.

Of the thirty-one members of the General Assembly that convened that day, several were without money and soon thereafter it was reported that because of this the body would adjourn. This came to the ears of Governor Pierpont, who knew that in this event all would be lost, and he resolved to borrow ten thousand dollars on his own private credit. He asked Peter G. VanWinkle, of Wood county, if he would endorse his notes. His answer was that of a ready compliance, and the two proceeded to the Merchants' and Mechanics' Bank of Wheeling, where the Governor told Mr. Brady, the cashier, that they desired to see him and Mr. Lamb, the cashier of the Northwestern Bank together. The latter gentleman was soon present and the Governor said to them that "A State Government without

money was of no account, and that he wanted ten thousand dollars—five thousand from each bank—not on the credit of the State, but on his own private notes endorsed by Mr. VanWinkle." These sums were speedily placed to his credit and thus the embarrassment was relieved and what had been doubt and despair, gave way to assurance and hope. The members of the Assembly were paid a sufficient sum to defray their actual expenses and the session finished the work before it.

On the 20th of June, 1863—West Virginia's Natal Day—the Reorganized Government, having been in existence two years lacking ten days, had gathered from various sources and had in bank the sum of $225,280.07; of this amount $75,280.07 was retained by it to pay its expenses until the beginning of 1864, and the remainder—$150,000.00—placed to the credit of the New State. With this sum West Virginia began business on that June morning. In addition she had placed to her credit the tax duplicates on real and personal property in thirty-three counties; these amounting to $188,552.39, on real estate valued at $47,138,074.05; and $52,416.12, on personal property, the value of which was $3,635,449.00; a total tax levy of $240,968.51. The values upon which these sums were assessed did not include any property in the counties of Greenbrier, Monroe, Mercer, Pocahontas, Pendleton, Hardy, Hampshire, Morgan, Berkeley, Jefferson, McDowell, Fayette, Raleigh, Boone, Logan, Wyoming and Webster, but the authority of the New State was speedily extended to them and thus its finances and revenues were speedily doubled; that of real estate being valued, in 1867, at $86,894,702; and that of the personal property for the same year at $32,597,938,—an increase in the latter of nearly ten fold. Such were the finances of the State in its early days.

The present Constitution of the State, which, as before stated, has been in operation thirty-two years, declares that taxation shall be uniform throughout the State; that all property, both real and personal, shall be taxed in proportion to its value; that one species of property from which a tax may be collected shall not be taxed higher than another species of equal value; that the Legislature shall have power to tax by uniform and equal laws, all privileges and franchises of persons and corporations; that property used for educational, literary, scientific, religious or charitable purposes, and all cemeteries and public property may, by law, be exempted from taxation; that the Legislature shall levy an annual capitation tax of one dollar upon each male inhabitant of the State who has attained the age of twenty-one years, but persons afflicted with bodily infirmity may be exempted therefrom.

Further, the Constitution is explicit in its provision that: "No debt

shall be contracted by the State," and when there is a deficiency in the revenues for any one year, "the Legislature shall at the regular session thereof held next after the deficiency occurs, levy a tax for the ensuing year sufficient with the other sources of income to meet such deficiency, as well as the estimated expenses of such year." Nor shall the credit of the State ever be granted to, or in aid of, any county, city, township, corporation, or person; nor become responsible for the debts or liabilities of any county, city, township, corporation or person; nor can it ever become a joint owner or stockholder in any company or association in this State or elsewhere, formed for any purpose whatever.

It is to these safeguards embodied in the Constitution, and their rigid enforcement by the powers of administration, that the people are indebted for the splendid financial condition of the State—without a dollar of indebtedness, not a cent of interest to pay—but instead a large surplus remaining in its treasury each year.

Would we see how the State has grown? If so, we must deal with millions, for the record of advancement from 1867 to 1903 has been one of rapid strides. Let us see how valuations have increased. In 1867, the total value of real estate was $86,894,702; in 1903 it was $158,435,343, an increase of $71,538,641. In 1867, the total valuation of all personal property was $32,597,938; in 1903 it was $66,727,740, an increase of $34,129,809; in 1867 the total value of all railroad property was $6,568,103; in 1903, it was $25,707,834.04, an increase of $19,139,734.04. In 1867, the total value of all species of property was $126,060,743; in 1903, it was $248,749,722, an increase of $122,688,979. From these figures it is seen that in the period over which they extend, the value of the real estate of an entire State has been almost doubled; that of personal property more than doubled; that of the railroad property has increased nearly four fold; while that of the total of all species of property is almost doubled. What other American State east of the Mississippi can make such a proud showing as this? How these gains have been made will appear beyond.

STATE BANKS AND BANKING IN WEST VIRGINIA.

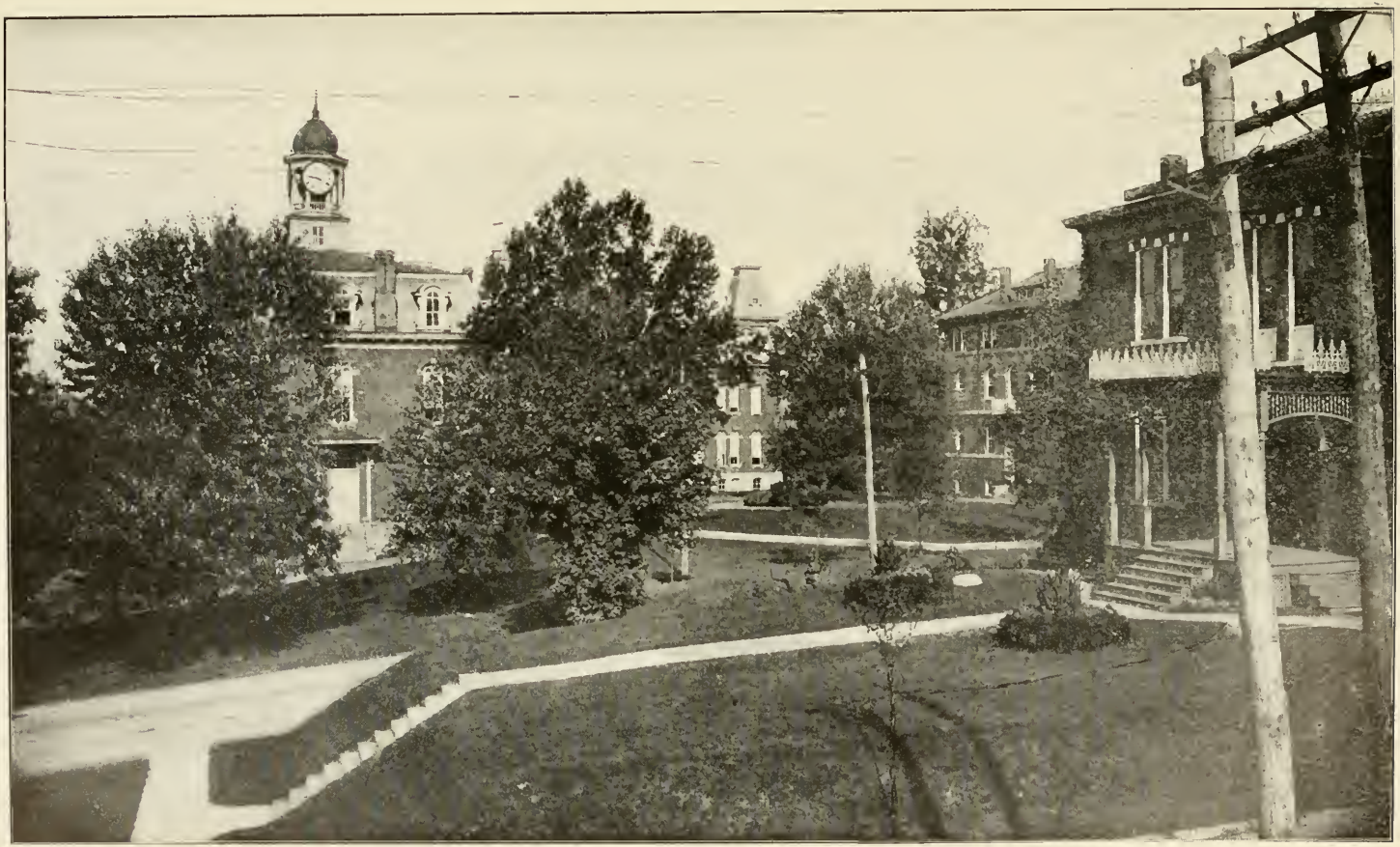
It is often said that the best index of the prosperity of a community is to be found in the number, character and business of its banking institutions, and West Virginia measured by this standard will take high standing among the states of this nation.

The story of banking in West Virginia while the State was still a part of the Old Dominion, is an interesting one to him who would learn our financial history. Before the Civil War, Virginia had six chartered banks of issue, exchange, deposit, and discount, and each had several branch establishments in as many different towns, and these were known as Offices of Discount and Deposit.

"The Bank of Virginia" at Richmond, was incorporated January 30, 1804, with a capital of one and a half million dollars. Its only branch in later years in West Virginia was at Charleston. "The Farmer's Bank of Virginia," at Richmond, was created by act of Assembly February 13, 1812, and loaned a large sum of money to the National Government to assist in prosecuting the Second War with Great Britain; it had no branch establishments in what is now West Virginia, "The Northwestern Bank of Virginia" at Wheeling, was chartered February 5, 1817; it had branches at Parkersburg, Clarksburg and Wellsburg. "The Bank of the Valley of Virginia," at Winchester, began its legal existence on the 5th day of February, 1817, and had branches at Charles Town, Romney, and Moorefield. "The Merchants' and Mechanics' Bank," at Wheeling, was incorporated in 18—, and had branch offices at Morgantown and Point Pleasant. "The Exchange Bank of Virginia," at Norfolk, was established March 25, 1837 and had branches at Weston and Lewisburg.

In the years immediately preceding the war these banks established additional branches in other towns now within West Virginia. Such was banking in this State under the old regime.

On the 3rd of June, 1864, Congress passed "An act to provide a national currency secured by a pledge of United States Bonds, and to provide for the circulation and redemption thereof." This brought forth the first reference to State banks by the Legislature of West Virginia which body, in a joint resolution adopted February 18, 1865, cited the title of this national law and then requested our senators and representatives in Congress to secure, if possible, an amendment to the act "so as to allow State banks having branches to become national banking associations and still use a portion of their capital for banking purposes." Some of these old State institutions were transformed into national banks, others closed up their affairs, and still others continued, in the absence of any State law, to do business from 1862 to 1872, when, in compliance with a Constitutional provision (Article XI., Section 6) the Legislature, on the 26th of December of the last named year, passed a general banking law entitled "An Act to Provide for the Incorporation of Banks of Discount



THE WEST VIRGINIA UNVERSITY—The Circle—(See p. 108.)

and Deposit." Under its provisions numerous State banks were established, but this act was repealed in 1881, after which time these institutions were created under the general law, "Concerning the Incorporation of Joint Stock Companies without Special Charters," until the enactment of the present banking law of the State, February 13, 1901, and which is now known as Chapter LXXXIII. of the Acts of that year. The law specifies the business which these institutions shall transact by declaring that "They shall exercise all such incidental powers as shall be necessary to carry on the business of banking, by discounting promissory notes, negotiating drafts, bills of exchange and the evidence of indebtedness, receiving deposits, buying and selling exchange, bank notes, bullion, or coin, and by loaning money on personal or other security." A constitutional provision makes stockholders in these banks personally liable to the creditors thereof, over and above the amount of the stock held by them to an amount equal to the respective shares so held, for all liabilities.

By an act of the Legislature of February 23, 1891 the office of State Bank Examiner was created. The title was changed to that of "State Commissioner of Banking," in 1901, when he, the Governor and the Attorney-General jointly, were given jurisdiction and control over all banks chartered by and operating in this State. He is appointed by the Governor for a term of four years and must be a citizen of the State, experienced and skilled in bookkeeping and banking and shall have had at least two years experience as cashier of a bank, or shall have served a term as an accounting officer of the State, and shall not be directly or indirectly interested in any bank or corporation subject to his supervision. His salary is $1,500 per year with $600 traveling expenses and such contingent expenses as may be allowed by the Legislature. He is required to keep his office at the State capital wherein he shall prepare and preserve a complete record of the financial condition of all the banks subject to his supervision. At least once in each year he shall personally make a thorough and complete examination of the condition and affairs of each of said State banks as to assets and liabilities, and whether such assets are solvent and good, or otherwise, and whether the banking laws of the State are being complied with by these institutions.

The law requires the State bank officials to place before the Commissioner all books, papers, notes, bills, and other evidences of debts due said banks, and they shall also disclose fully and truly all the bank's indebtedness and liabilities, and shall furnish him with all necessary clerical aid and assistance. In addition to this examination, each of

these banks is required to make "Call Statements" to the Commissioner quarterly, according to a form furnished by him, and each of these reports shall exhibit in detail and under appropriate heads, the resources and liabilities of the bank at the close of business on any day by him specified. In the same form this statement is required to be published in a newspaper in the place where the bank is situated, or if there be none issued there, then in the nearest paper thereto, at the expense of the bank. The law further requires that there shall be paid a sum by each of said banks examined, to the State as follows: If the total assets are less than a hundred thousand dollars, fifteen dollars; if two hundred thousand dollars and less than four hundred thousand dollars, twenty dollars; if four hundred thousand dollars, or over, twenty-five dollars; and the Commissioner of Banking is required to collect such fees and turn them in to the State Treasury.

The Report of the Commissioner of Banking:—The Commissioner is required by law to make out annually on or before the first day of December, and present to the Governor, a carefully prepared and complete report, showing the total resources and liabilities of all the State banks subject to his supervision; the increase, or decrease for the year in such resources and liabilities; noting failures that may have occurred with such remarks, suggestions, and recommendations as he may deem pertinent. This report for the year ending December 1, 1903, is before us, and it reveals a monetary condition that must be both surprising and gratifying to all the people of the State and a striking evidence to the commercial world of the safe business methods and prosperity that everywhere obtain in West Virginia. From this report we learn that there is not now in the State a single county that does not have one or more banks within it; that there are now one hundred and fifty-two State Banks; that of these thirty-nine were established in the last year; that deposits in these banks have more than doubled in the past five years; that now these deposits have reached the sum of $38,875,157.19; that their total resources are $53,481,750.14 Hon. M. A. Kendall, the efficient Commissioner of Banking, adds to this report a statement concerning National Banks, from which it is shown that sixty-eight of these that are now doing business in the State have deposits amounting to $23,349,827.21 and resources aggregating $37,623,030.27. Add the deposits in these National Banks to those of the State Banks and we have a grand total of $62,258,555.86, or more than $50 per capita for the entire population of the State. Again, adding the resources of the National Banks to those of the State Banks, we have a total of $91,104,780.41.

This growth of the banking interests of the State in the last few years is phenominal. By it money is made plentiful in every part of it for the transaction of business interests, and these same interests have caused the deposits of these State Banks to quadruple in twelve years. The reason for this will be seen in the following pages. Mr. Kendall truthfully says: "We have no large cities and no money centers, and our bank totals are still small compared with those furnished by many of the older States; but we challenge any other State in the Union to show the same percentage of increase during the same or a similar period of time."

The following table exhibits the growth of the banking business in the State—increase in number of banks, and of deposits, in State Banks—from 1891 to 1903—a period of twelve years.

Year.	No. Banks.	Total Deposits.
1891	49	$ 8,330,896.96
1892	50	9,418,513.26
1893	55	9,173,210.89
1894	56	9,066,980.99
1895	58	9,698,068.10
1896	60	10,609,880.96
1897	68	11,195,954.26
1898	74	13,069,263.84
1899	76	16,284,386.99
1900	89	21,323,927.06
1901	102	26,782,556.39
1902	115	32,872,669.70
1902	115	32,872,669.70
1903	148	38,875,157.19

From this it will be seen that we are now adding almost as much new business every year as our total State Banking business amounted to twelve years ago, to say nothing of that done by National Banks within the State.

THE WEST VIRGINIA NATIONAL GUARD.

The West Virginia National Guard has its origin in the provisions of an act of the Legislature approved February 25, 1889, which re-enacted the militia law of the State so as to comply with the requirements of Congress providing for the formation of the National Guard of the several

States. A brigade organization was effected June 27, 1890 with Colonel Baldwin D. Spillman as commandant with the rank of brigadier-general.

The Organization as it now is:—The present organization consists of a General Staff, one Brigade of two Regiments of Infantry; a Medical Department and a Signal Corps. The headquarters of the Brigade, Brigadier-General Clarence L. Smith commanding, is at Charleston. That of the Medical Department at Wheeling and of the Signal Corps at Charleston.

The First Infantry:—The headquarters of the First Regiment, Colonel Harry R. Smith commanding, and composed of three battalions, is at Fairmont; that of the First Battalion at Martinsburg; that of the Second Battalion at Wellsburg; and that of the Third Battalion at Wheeling. The companies of this regiment are located as follows: Company "A", at Wheeling; Company "B", at Sutton, Braxton county; Company "C", at Anthem, Wetzel county; Company "E", Martinsburg, Berkeley county; Company "F", Mannington, Marion county; Company "G", Kingwood, Preston county; Company "H", Fairmont, Marion county; Company "K", Clarksburg, Harrison county; Company "L", Morgantown, Monongalia county; Company "M", Terra Alta, Preston county.

The Second Infantry:—The headquarters of the Second Regiment, Colonel Charles E. Morrison, of Parkersburg commanding, and composed of three battalions, is at Parkersburg; those of its First and Second Battalions, at Huntington; that of its Third Battalion, at Parkersburg. The companies composing this regiment are distributed as follows: Company "A", at Sistersville, Tyler county; Company "B", at Ronceverte, Greenbrier county; Company "C", at Ansted, Fayette county; Company "E", at Parkersburg, Wood county; Company "F", at Milton, Cabell county; Companies "G", "H", and "I", at Huntington, Cabell county; Company "L", at Parkersburg; Company "M", at Charleton, Kanawha county.

The Annual Encampments:—Provision is made by the Legislature for annual drills and encampments which have taken place as follows: In 1891, September 3rd, at Gypsy Grove, in Harrison county, for six days; in 1892, July 19, at Camp Blennerhassett, Parkersburg, for six days; in 1893, September 28, at Camp Kenna, Kanawha county, for six days; in 1894, July 26, at Camp J. B. Jackson, Martinsburg, for six days; in 1896, August 3rd, at "Camp Holly," Huntington, for six days; in 1897, no encampment, but officers' school, instead, at Charleston; in 1899, no encampment, but practice marches by battalions, instead; in 1900, encampment by regiments—Second Regiment, August 6, at Camp Smith," Charleston,

THE WEST VIRGINIA UNIVERSITY—(See p. 108.)

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for six days, and First Regiment, August 21, at "Camp Spillman," Keyser, for six days; in 1901, September 16, at "Camp Curtin," Wheeling, for ten days; in 1902, August 5, at "Camp White," Parkersburg, for ten days.

Those who have filled the office of Adjutant-General with the rank of Brigadier-General, are Benjamin H. Oxley, James A. Holley, John W. M. Appleton and Samuel Baker. The assistant adjutants-general, serving with the rank of colonel, have been Charles L. Hagan, A. W. Johnston, Charles L. Lehnis, D. T. E. Casteel, Charles W. Simms and A. S. Hutson.

Both regiments are supplied with the best arms, uniforms, tents and camp equipment, and are well drilled. It was from their ranks that the two regiments mustered for service in the Spanish-American War, were largely filled. West Virginia is proud of her soldier boys.

THE WEST VIRGINIA HUMANE SOCIETY.

"It is God-like to protect those who cannot protect themselves."

There are charitable institutions on all sides established by statute or city ordinance, and private benevolent associations of philanthropic people, all doing good work according to their resources and limitations of power. Still, there have been and are today, many thousand cases of depravity, physical suffering, and misery, resulting from man's inhumanity to man and his total forgetfulness of his duty to dumb creatures in his charge, which these organizations do not reach. There is, therefore, a field—a mission—distinctly, clearly, marked out—a duty toward God's creatures providing them with safe-keeping and relief from misfortune; a mission it is, as holy and sacred as that pursued by any church organization. To meet the requirements of this mission, to be the protector of dumb animals and little children, to speak with authority when unnatural parents, and brutal owners of dumb animals abuse the privileges they possess, is the legitimate duty and office of the Humane Society. So thought a number of actively humane ladies of Wheeling, who for years had discussed the best way, method and means, for the achievement of the work which they saw should be done. Accordingly, on the 18th day of May, 1896, there was a gathering of these at No. 1233 Market street, and ere they adjourned what has since been known as the "West Virginia Humane Society" had

been organized. Dr. Harriet B. Jones was elected President, and Captain Charles J. Rawlings, Secretary.

The city papers next day contained detailed accounts of the movement and much interest was aroused. A general meeting was held June 18th, ensuing, at the rooms of the Chamber of Commerce, corner of Market and Fourteenth street, called for the purpose of explaining the purpose and aims of the society, and also to solicit aid for the advancement of its work. The Secretary of the West Pennsylvania Humane Society was present and explained its methods of work in Pittsburg and elsewhere. On this occasion the membership was largely increased, and soon it was seen that there was work on every hand, but action was restricted by want of State laws and city ordinances applying to plain cases of inhuman treatment; to this was added an almost total disregard, in many instances, of the laws already embraced in the Code. The Society sought a remedy and it was speedily found. At a meeting held on the 10th of August, it was resolved to apply to the Legislature of the State for needed legislation, and, at the same time, to secure a charter of incorporation for the Society. The application for this was prepared, the charter members being Miss Jane Baird Wilson;; Miss Elizabeth I. Cummins, Miss Ann M. Cummins, Dr. J. L. Dickey, Miss Harriet M. List, Henry O. Ott, G. R. C. Allen and Charles J. Rawlings, and the charter was issued by the Secretary of State September 22, 1896. Then a bill, embodying such legislation as the Society needed in the prosecution of its work, was prepared by G. R. C. Allen, and carried to Charleston by the President, Dr. Harriet B. Jones, where, with the aid of friends of the Society, its passage by the Legislature was secured. In compliance with this act, Governor George W. Atkinson appointed as a board of directors for the Society, Mrs. John K. List, of Wheeling; Lee Langamfelter, of Hedgesville; Holly G. Armstrong, of Ripley; and Mrs. Rose Walthall Straley, of Princeton. April 10, 1897, these persons met at the Chamber of Commerce of Wheeling, and effected an organization by the election of Mrs. List as President and Mr. Langamfelter, Secretary. By-laws were adopted and a future course of work mapped out for the Society, which now had behind it the force of law and an appropriation from the State Treasury. Work began in earnest and so energetically was it prosecuted that within two years there were a greater number of local branches than a similar society had in any other State except New York. Among these were the organizations at Charleston, Ripley, Parkersburg, Clarksburg, Buckhannon, Grafton, Fairmont, Elkins, Morgantown, Keyser, Berkeley Springs and Martinsburg. The motto of the

Society is "Prevention not Punishment." It has authority to take into its care children who are abused or neglected, or are being brought up under immoral or degrading circumstances, conditions, or surroundings; to find homes for the aged, and protect the brute creatures from the abuses of cruel owners. This Society is doing a noble work—one that commands the attention of the people of the entire State. In its latest report to the Governor, one reads, among many others, such items as these: "Number of aged sent to homes, 16; number of children relieved from cruelty and distress, 874; number of horses relieved from cruel usage, 1,173." The Society has still another function. It is a creature of the State laws, clothed with power to prosecute and bring to justice all who violate the laws of humanity. Thus it teaches compliance with the enforcement of both. The State makes annual appropriations for its use. All honor and more power to the West Virginia Humane Society.

EDUCATION IN WEST VIRGINIA--PAST AND PRESENT.

For many years the history of West Virginia is a part of that of Virginia, and if we would learn its story, we must begin its study beyond the mountains toward the Chesapeake. The earliest effort to establish a school of any kind in the United States, was at Jamestown on the banks of the historic James river. Many of the foremost literary men and profoundest scholars of England were members of the Virginia Company of London, and George Percy, John Pory, Alexander Whitaker, George Sandys and others who had come to the Colony, were educated men. Hence, we are not surprised to find the Company, after having established representative government in Virginia, engaged in an effort to found at Jamestown in 1619, the first educational institution in North America north of the parallel of Mexico. It was to be the College of Henrico, and to be located on the north or eastern bank of James river, ten miles below the Falls—now Richmond. Here the Company, on the recommendation of its treasurer, Sir Edwin Sandys, donated, or set aside, fifteen thousand acres of land and furnished one hundred tenants to cultivate this for its support. King James I, a friend of the proposed school, issued instructions to the Bishops

of England to collect money to build a college in Virginia. In these he said: "Wherefore, do we require you and hereby authorize you to write letters * * * to zealous men of the dioceses, that they may both by their own example in contribution and by exhortation to others, move the people within their several charges to contribute to so good a work * * * to be employed for this goodly purpose and no other." Fifteen hundred pounds were thus collected. Then there were donations and bequests. Gabriel Barker, a member of the Company, gave five hundred pounds for the education of Indian children in the institution; a person unknown, sent a communion table for the College; still another, who concealed his identity, gave many excellent books to the value of ten pounds, together with a map "of all that coast of America"; Nicholas Farrar gave, by will, three hundred pounds for the same object; Reverend Thomas Bargrave, a minister in the Colony, gave a library valued at one thousand marks; and the inhabitants along the banks of the James made a contribution of fifteen hundred pounds to build a house of entertainment at Henrico. In midsummer of this year, George Thorpe, the Superintendent of the College —the first English schoolmaster in America—arrived in Virginia, and fixed his residence at Henrico where work on the institution began. In October, 1621, Sir Francis Wyatt, governor of the Colony, arrived at Jamestown bringing a series of instructions from the Company for his own guidance, and one of these was that he should see to it that every town or borough "have taught some children fit for the College." It is fair to presume that in compliance with this requirement, he caused schools to be established for this purpose.

But still another effort was made to found, thus early, a school in Virginia. In 1621, Reverend Patrick Copeland, chaplain of an East India ship, the "Royal James," collected from the mariners and passengers, when homeward bound to England, the sum of seventy pounds, eight shillings, and six pence, to aid in founding a seminary or preparatory school at Charles City, in Virginia, to be known as the East India School. Other donations of money and books were made in England. The Virginia Company of London appropriated a thousand acres of land with five tenants, to aid in its support. The good ship "Abagail" brought over a number of mechanics, ship-carpenters and others; also "a select number to build the East India School at Charles City." Its projector, Reverend Patrick Copeland, was chosen its rector, but for reasons now to appear, he never crossed the ocean. A terrible tragedy darkened all the land of Virginia. This was the Indian massacre on the 22nd of March, 1622, when three hundred and

NEW HIGH SCHOOL BUILDING—Huntington, Cabell County—(See p. 99.)

forty-seven of the settlers fell in death at the hands of a barbarous and perfidious people. Superintendent Thorpe and seventeen of the people of the College of Henrico were among the slain, and five victims fell at Charles City, the seat of the East India School. Whether these last were the five tenants sent by the Company to till the lands, cannot now be known but it is fair to presume that they were. That direful calamity stayed the progress of education in the Colony. Had it not been so, the College of Henrico with equipment and preparatory schools "teaching some children fit for the College" would have begun its work fifteen years before Harvard, seventy-two years before William and Mary opened its doors to students, and eighty years before Yale had an existence.

FROM THE SEA TO THE MOUNTAINS.

In 1624, two years after the massacre, King James by *quo warranto* proceedings, dissolved the Virginia Company of London. Thus the proprietary government ceased and, henceforth, the Colony was subject to the rule of officials appointed by the Crown. A hundred years passed away before a single white man found a home west of the Blue Ridge. In this period we know but little of the schools of the Tidewater and Piedmont regions, for the historians of that time paid but little attention to educational matters, so that legislative annals—the most reliable of all—become almost our only source of information. From this source we learn that in 1643, Benjamin Symms, devised a freehold of two hundred acres on Pocosin river in Elizabeth City county, with the milk and increase of eight cows "for the maintenance of a learned, honest man to keep upon said ground a free school for the education and instruction of the children of the parishes of Elizabeth and Kiquotan from Mary's Mount downward to the Pocosin river." This was confirmed by the House of Burgesses—the legislative body of the Colony. It also appears that, soon after, Thomas Eaton died, and, having been prompted by the good intent of Symms, left an estate in the same county for a similar purpose.

In 1675, Henry Peasley devised by will "six hundred acres of land in Gloucester county, together with ten acres and one brood mare for the maintenance of a free school to be kept by a school master for the education of the children of Abingdon and Ware parishes, forever." After this school had continued for eighty years, it was represented to the House of Burgesses that, because of the inconvenient situation of the land, few children attended the free school kept there, and the donation of Peasley was of little benefit. Accordingly, that body in 1756, created a corporate body styled the "Peasley

Free School," of which the ministers, the church wardens, and vestrymen of the two parishes were made stockholders, with full power to devise, lease or grant for twenty-four years, the Peasley estate, and establish a free school in each parish. This was the first free school ever incorporated in Virginia.

In 1660 the House of Burgesses provided for the establishment of a College, but there were delays and it was not until 1693 that William and Mary College, the oldest institution of learning south of the Potomac river, was opened for the admission of students.

Burke, the Virginia historian, writing of conditions in the colony immediately preceding the Revolution, says: "Although the arts by no means kept pace with commerce, yet their infant specimens gave a promise of maturity and glory. The science of education had gradually become more liberal and men of erudition, attracted by the rising fame of the Colony, and the generous patronage of the Legislature, abandoned their countries and came as teachers to Virginia." The College of William and Mary had been open for three quarters of a century and many young men who were to be among the founders of this nation, thereby raising high their own fame and the glory of their country, had already gone out from its walls.

At the close of the Revolution the Established Church ceased to exist, and the titles to its glebe lands and church property vested in the State, or rather in the counties in which these were situated. This gave rise to what were known as "Charity Schools." The people of King George, New Kent and other parishes petitioned the General Assembly for needed legislation in the disposition of these funds, and in some, as in the first named county, free schools were established; while in others, among them New Kent, the funds were used for building houses and employing teachers for the education of poor children—hence the "Charity School."

THE BEGINNING OF EDUCATION IN WEST VIRGINIA.

But little can be known of the first schools in West Virginia in the early years of its settlement, for from the year 1727, when Morgan *ap* Morgan, the first settler within the bounds of the State, reared his cabin home, until General Wayne, in 1794, broke the savage power at the battle of Fallen Timbers on the Maumee river—a period of sixty-seven years—there was little else than savage warfare in West Virginia. In these days of alarm, of midnight burnings, of the rencounter of the rifle, of the tragedy of the tomahawk and scalping knife; when the people were confined

in frontier forts, block-houses and stockades, there could be but little time for education, for culture and refinement. Yet, strange as it may seem, the little log school house might be seen here and there in the deep recesses of the wilderness. The first reference to a West Virginia school house which the writer has seen is that contained in an entry in the Journal of George Washington when, in 1747, he was surveying lands for Lord Fairfax on the Upper Potomac and in the South Branch, Cacapon, and Patterson creek valleys. On the 18th of August of that year, he surveyed a tract by beginning at a station in "the School House Old Field." But no stream or other object is mentioned by which this location can be determined, nor can this be done by any contemporary surveys. It is believed to have been far up the South Branch Valley, at what is now known as the "Indian Old Fields," in Hardy county, but this is little more than conjecture. Certain it is that there were, even, then, *old school house fields* in the vicinity of the site of Shepherdstown and Martinsburg, and Washington may have made his survey at one of these that 18th day of August, 1747. That was not a long time ago, but it was seven years before the beginning of the Old French and Indian War, and twenty-nine before the Declaration of Independence. The first definite information regarding a school in the South Branch Valley is that a man of the name of Shrock began teaching in a cabin at Romney in 1753—one hundred and fifty years ago—and continued for several terms, then went—none know whither.

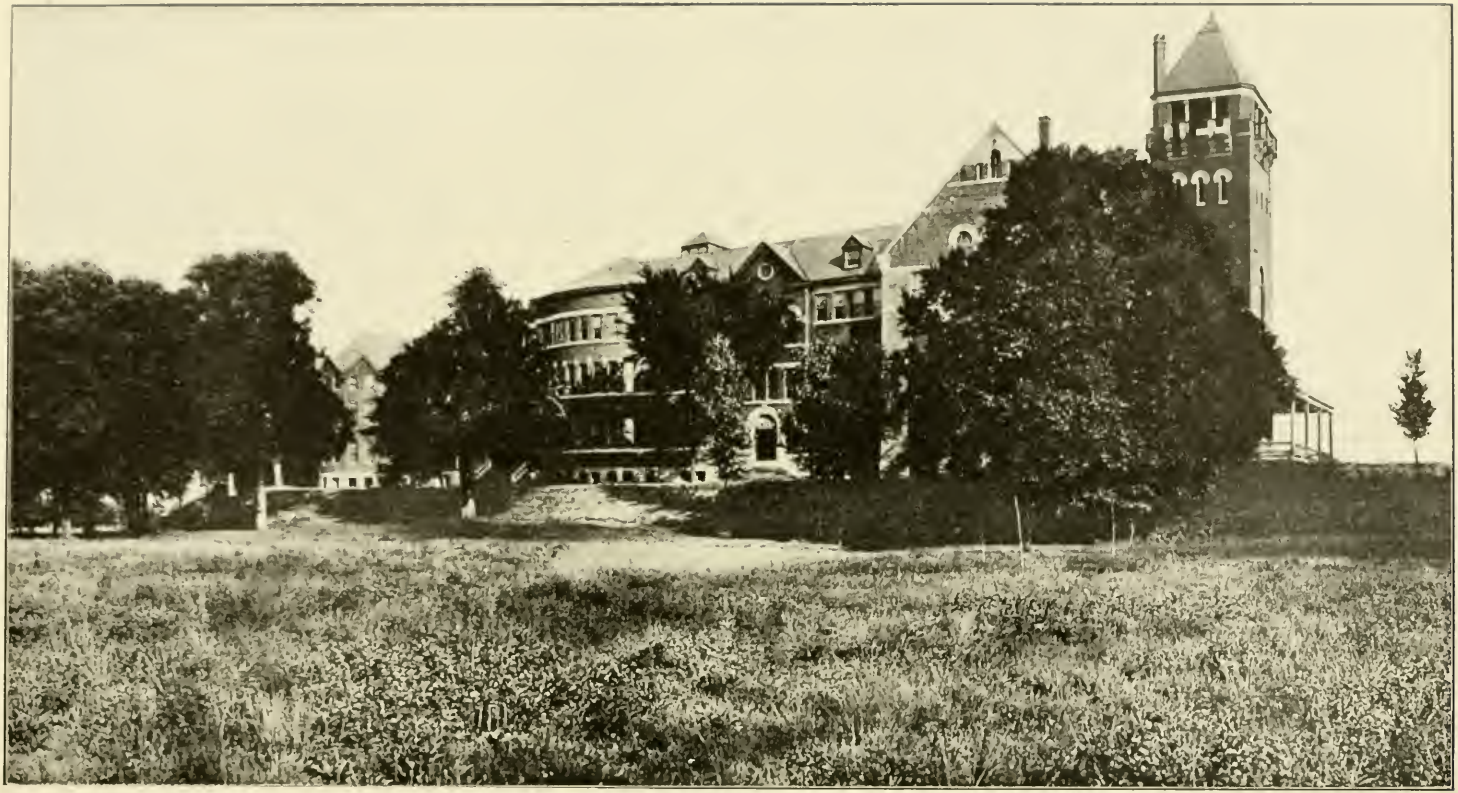
THE FIRST PUBLIC SCHOOL LAW THAT AFFECTED WEST VIRGINIA.

The first Virginia school law that affected West Virginia, was enacted by the General Assembly on Thursday, December 26, 1796. At that time, ten of the West Virginia counties had an existence; these were Hampshire, Berkeley, Monongalia, Ohio, Greenbrier, Harrison, Hardy, Randolph, Pendleton and Kanawha, formed in the order named. This act called the "Aldermanic School Law," contained a preamble in which it was said: "Whereas it appeareth that the great advantages which civilized and polished nations appear to enjoy, beyond the savage and barbarous nations of the world, are principally derived from the invention and use of letters, by means whereof the knowledge and experience of past days are recorded and transmitted, so that man, availing himself in succession of the accumulated wisdom and discoveries of his predecessors, is enabled more successfully to pursue and improve not only those acts which contribute to the support, convenience and ornament of life, but those also which tend to illumine and ennoble his understanding and his nature." Further, that

"if the minds of the citizens be not rendered liberal and humane, and be not fully impressed with the importance of those principles from which these blessings proceed, there can be no real stability or lasting permanency of the liberty, justice and order of a republican government."

With a view, therefore, to lay the first foundation of a system of education which should tend to produce these desirable purposes, it was enacted that in every county of the State the people should annually elect "three of their most honest and able men to be called Aldermen of the County;" that these should meet annually on the second Monday in May, at their court house, there to consider the expediency of putting the act into execution, having regard to the state of the population within the county; that if this was deemed best, they should proceed to divide the county into sections, regulating the size of these so that each should contain a sufficient number of children to make up a school; that each section should be given a particular name; that a list of these names should be supplied to the clerk of the county court who was required to make record thereof in his office; that these should remain unaltered until a change was rendered necessary by an increase or decrease of inhabitants, and that then succeeding Aldermen should make such change as the county court directed. After this action had been taken by the Aldermen, it was made the duty of the householders of each section to meet on the ensuing first Monday in September at such place as the Aldermen should have designated and given notice of; and when thus assembled, they should agree upon the most available site for the location of a school house. If a tie resulted, it was the duty of the Aldermen living outside the section to cast the deciding votes. A site having thus been chosen, the Aldermen were at once to proceed to have a school house erected, kept in repair, and rebuilt when necessary; but in the latter case the householders were to again assemble and determine whether this should be upon the present site or another.

When the house was ready for occupancy it was the duty of the Aldermen to select a teacher for the school, who might be removed by them for cause; and it was their duty, or at least one of them, to "visit the school once in every half year at least," examine the scholars, and superintend the conduct of the teacher in everything relative to his school, in which the law declared there "shall be taught reading, writing and common arithmetic; and all the free children, male and female, resident within the respective sections, shall be entitled to receive *tuition gratis,* for the term of three years and as much longer, at their private expense, as their parents, guardians, or friends shall think proper." The expense of



MARSHALL COLLEGE STATE NORMAL SCHOOL—Huntington, Cabell County— (See p. 114.)

building the house and the salary of the teacher in the different sections, was defrayed by the inhabitants of each county in proportion to the amount of their public assessments and county levies. This was to be ascertained by the Alderman of each county respectively, and to be collected by the sheriff just as other public taxes were collected; and it was made the duty of this official to pay all school money to the Aldermen. Such was Virginia's first Free School Law, enacted one hundred and seven years ago, by the provisions of which school houses were to be erected and teachers employed at public expense; and all children were to have three years schooling, *tuition gratis.*

THE "OLD FIELD SCHOOLS" OF WEST VIRGINIA.

This act was made operative from and after the first day of January, 1797. As stated, there were at that time ten of the present West Virginia counties then existing and they covered the entire area of the present State. How many of them put into force and operation "The Public School Law of 1796" can now only be learned by investigation and research among the musty and dusty records of more than a century ago. Doubtless action was taken by at least some of them, for certain it is that at the beginning of the century ensuing, schools were established here, there, and everywhere over Western Virginia wherever there was a sufficient population. The Indian wars were past; the frightful war-whoop of the savage was no more heard east of the Ohio; and these frontiersmen, brave as ever dared the perils of the wilderness, did assemble, select sites, and provide for the building of school houses, whether in the section as prescribed by the "Law of 1796," the cost of erection to be defrayed by taxation, or by their own hands and at their own cost, certain it is that they were provided and in them began a system of schools ante-dating the Louisiana Purchase and the admission of Ohio into the Union. In them, the Jolly Old Pedagogue of "ye olden time" began his work. They came to be known as "Old Field Schools," from the location of the houses. No matter how the selection of a site was made. It was the same. Down on the broad river bottoms, in the valleys of smaller streams, or among the hills where was a bubbling spring or rippling brook, a spot, in juxtaposition to half a dozen or more cabin homes was agreed upon by the heads of the families as a suitable place for the school house. It was an old "clearing" which tradition said was made by a man who was killed by the Indians, lost in the woods and never afterward heard of, or, tired of the wilderness, had gone back over "the Ridge"—the Blue Ridge.

There on the margin of that "improvement"—an "old field," with the primitive forest in the rear and the plat of wild grass and tangled weeds in front, these men—advance guard of civilization—reared the school house. Rude structure it was; in size, perhaps 16 x 18 feet; the walls built of logs, sometimes hewn but usually round, and from eight to twelve inches in diameter; the interstices chinked with sticks and stones and daubed with clay; the roof of clapboards held in place by heavy weight poles; the door of slabs, hung on wooden hinges; the floor, if any, was made of puncheons split from the body of a large tree and hewn so as to have somewhat the quality of smoothness; a fire-place, ample as that of an ancient baron, spanned over half of one end of the building and was surmounted by a "cat-and-clay" chimney, not unlike a tall partridge trap, ever tottering to its fall. Logs ten inches in diameter were split in halves, and pins or legs inserted in the oval sides, answered for seats. Along the side of the wall pins were inserted and on them rested a broad slab, sloping outward, used as a writing desk; just above it a log was chopped out and in its place was a long frame-work resembling sash for holding a single row of panes of glass, in the absence of which, greased paper was sometimes pasted to admit the light. Such was the structure in which was taught the "Old Field School," of the long ago.

THE LITERARY FUND OF VIRGINIA AS AN EDUCATIONAL FACTOR IN WEST VIRGINIA.

We must now make inquiry regarding what was long known as the Literary Fund of Virginia, which was the earliest irreducible and permanent school fund in the United States. In Chapter XIV of the Acts of 1809, it was provided: "That all escheats, confiscations, forfeitures, and all personal property accruing to the commonwealth, as derelict and having no rightful owner, which shall have accrued on the second day of February, 1810, and which shall thereafter accrue to the Commonwealth, be, and the same are hereby appropriated for the encouragement of learning." In 1810 it was further enacted that "all militia fines and arrears thereof, due the State February 11, 1811, or hereafter to become due; together with all fines and pecuniary penalties imposed by any act of the Assembly or declared by the commonwealth due, or to become due, on or after the same date, and the residum of intestate's estates, were to be added to the Literary Fund for the promotion of learning.

In the same year, the Governor, Lieutenant-Governor, Treasurer, Attorney-General and the President of the Court of Appeals were created a

body corporate under the name of the "Directors of the Literary Fund" for its management; and the Auditor of Public Accounts was made its custodian. The Directors had power to appoint an attorney, or agent, in each county, whose duty it was to report to them any failure to pay, or to collect money due the Fund. In 1814 the title to all lands exposed to sale for tax, but unsold, was made to vest in the Literary Fund, and if redeemed within a year, the tax with ten per cent. thereon went to augment the Fund; so, too, if the lands were not redeemed, but sold afterward by the State, the receipts were added to it. In 1812 the State loaned a sum of money to the National Government to aid in its prosecution of the war with Great Britain, and in 1816 it was enacted that when this was repaid, the amount should be placed to the credit of the Literary Fund. The income of this was now to be used for the promotion of literature, and it was provided that it should be appropriated to the sole benefit of a school, or schools, to be kept in each and every county of the Commonwealth, subject to the regulations which the General Assembly might prescribe. It was declared that "whereas this object is equally humane, just and necessary, involving alike the interests of humanity and the preservation of the Constitution, laws and liberty of the good people of the Commonwealth, the present General Assembly solemnly protests against the use or application of the Fund to any other use than the education of the poor."

Such was the use now to be made of the interest or proceeds of the Literary Fund, for in 1817, an act was passed which made important changes in the "Aldermanic School Law of 1796," which had been in operation twenty-one years. It provided that for the purpose of applying the Literary Fund to the object of its institution—the education of the poor—the courts of the several counties should each appoint not less than five nor more than fifteen discreet persons to compose a Board of School Commissioners for the county. A majority constituted a quorum; a treasurer was selected from the body who gave bond in the penalty of two thousand dollars, and then received and disbursed, on the order of the Board, the quota of the Literary Fund due his county, this being based on population and forty-five thousand dollars being the amount annually disbursed, at that time. It was then the duty of the Board to determine the number of poor children in the county; how many of them it would educate; what sum it could pay for their education; to send these to school, having first secured the consent of the parents or guardians and supply them with materials for writing and ciphering. This Board made an annual report to the Directors of the Literary Fund, showing the number of indigent

children in its county; the number of schools in operation; the number of indigent children being educated in these schools; and what further appropriation from the Literary Fund would, in their opinion, be sufficient to furnish the means of education to all the indigent children. At this time, eighteen of the present West Virginia counties had an existence; and the Law of 1796 changed by the enactments of 1817—by which the three years' free tuition was repealed—continued to be in force for thirty years.

In 1833 twenty-five of the counties now embraced in West Virginia, had an existence. Three of these made no school report, but on October first of that year, it was shown that in the other twenty-two there were 655 schools in operation with pupils in attendance to the number of 5,874; tuition of all these was paid by the Literary Fund.

THE SCHOOL LAW OF 1846.

The year 1846 was characterized by much school legislation by the General Assembly. Of this there had been but little since the year 1817.

An Act Amending the Present Primary School System:—The act bearing this title was passed on the 5th of March, 1846, and by it the school law which had been so long in force was materially changed. Now it was made the duty of the county court of each county, at its ensuing October term, to lay off according to accurate and well known boundaries, the territory of the county into any number of districts, having regard to the territorial extent and population of the same, and to appoint for each of these districts one school commissioner. These, when appointed, constituted, collectively, the Board of School Commissioners for the county. It was to meet at the court house in the ensuing November, and having organized, proceeded to elect a superintendent of the schools of the county, who should execute a bond payable to the Directors of the Literary Fund, and who should perform the duties of treasurer and clerk of the Board. The Commissioner of each District transacted the school business within it; registered and reported to the County Superintendent all the children within his district between the ages of five and sixteen years; he entered into contract with the teacher of his district to teach such number of indigent children as many days as his district's proportion of the county's quota of the Literary Fund would pay for, and he required his teacher to keep an accurate account of the attendance of such children. Reports were made to the County Superintendent who kept a record of all the children enrolled in the schools of his county, and reported the same to the Board with such other information as he deemed useful to it. In September of

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each year, he made an annual report to the Directors of the Literary Fund, showing his receipts and disbursements, the ages and sexes of the children of the county, with the actual number of days of attendance of indigent pupils, and the amount of compensation per diem paid to teachers for their instruction. For his services he received two and a half per cent. of the amount passing through his hands and actually expended for the purposes of education. This law was in no wise an improvement over that which preceded it; in fact, it was a school law for indigent children only, for parents and guardians who were able were, required to pay tuition fees for the instruction of their children or wards in these schools. "The Old Field Schools" continued as before.

An Act for the Establishment of a District Public School System.—This was the title of an act passed March 5, 1846—the same date on which the foregoing was approved. For half a century there had been a growing Free School sentiment in Virginia and prominent school men of the State were hoping for something better in education than the Commonwealth had yet known. Prompted by this desire, a large number of them assembled in Richmond in December, 1845, for the purpose of discussing and bringing before the Assembly, a bill providing for a free school system. Governor James McDowell voiced the sentiment of this Convention and in an eloquent address before it, he, after describing existing conditions, said: "We trust that we shall soon be delivered from this dominion of darkness! That we shall never be contented until every child can read and write, and every darkened understanding be illumined with the benign influence of education."

These people had a bill prepared, which they thought would be least objectionable, and, after many changes, it was finally enacted into a law. It provided that upon the petition of one-third of the qualified voters of the county to the court thereof, that body should submit to the voters thereof, the question of A District Public School System; and if it appeared that two-thirds of the votes cast as such an election favored such system, it should be declared adopted. Its principal provisions were: That the School Commissioners in office in any county, at the time of its adoption, should divide the county into Precincts, each containing as many School Districts as might be thought convenient; that each School District should contain a sufficient number of children to make up a school; that in each Precinct there should be annually elected a School Commissioner; and that the commissioners thus chosen in the several precincts should be a body corporate under the name of the Board of School Commissioners

for the County; that it should appoint a clerk whose salary should not exceed one hundred dollars per annum; that in each school district three trustees should be appointed, who should purchase a site, erect a good and sufficient school house; furnish the school with proper fixtures, books, apparatus and fuel, and keep the house and enclosure in good repair; that they should then employ a teacher for the school and have power to remove him for good cause; that no teacher should be employed by them whose qualifications for teaching, and whose moral character had not been examined and approved by the school commissioners, or by some person or persons deputed by them for that purpose, and a certificate to that effect produced to the trustees. They, or one of them, were to visit the school once in every month, and examine the scholars, and address the pupils if they saw fit and exhort them to prosecute their studies diligently. They might suspend or expel all pupils who were found guilty of grossly reprehensible conduct, or incorrigibly bad habits. Annually, they made a report to the Board of Commissioners of the condition, operation, and expense of the school. It was further provided that the expense of purchasing a site, of building, renting, or leasing and repairing the school-houses of the several districts, and furnishing them with the necessary seats, desks, fixtures and books, and the salaries of teachers were to be defrayed by the inhabitants of the county by a uniform rate of taxation to be collected as other taxes are collected. To this fund was to be added the quota of the county due from the Literary Fund. All children over six years of age were entitled to attend these schools free of charge—a free school system.

An Act to Establish a District Free School System in Several of the Counties:—The fatal defect of the public school system just mentioned was that it required a petition signed by one-third of the voters of the county before the question of its adoption could be submitted, and a two-thirds vote to adopt it. Free school men in the Legislature saw this and on the 25th of February, 1846, secured the passage of a special act which prescribed a system of free schools to be optional for sixteen counties of the State, among them being the West Virginia counties of Brooke, Jefferson and Kanawha. Elections were to be held on Thursday, April 23, 1846, or, if there was not sufficient time for this, an election might be held on April 22, 1847. "Do you vote for the District Free School, or against it?" This was the question asked the voter. It required a two-thirds vote to adopt it. The act embodied many of the provisions of the General Law, noticed last

above. The Board of Commissioners organized by electing a President and a Secretary, the latter of whom received twenty-five dollars per annum. School houses were to be erected; seats, desks, and books supplied; teachers employed, and in the schools provided were to be thoroughly taught reading, writing, arithmetic, English grammar, and geography, and whenever it was practicable, history, especially of Virginia and the United States, and the elements of physical science, and such other and higher branches as the School Commissioners might direct. All white children, male and female, between the ages of five and twenty-one years of age, resident within the districts, were entitled to receive instruction at these schools free of charge. The total expense of these county schools was to be defrayed as follows: *First.* By the quota of the county from the Literary Fund. *Second.* Interest on the Glebe Land Fund, if any. *Third.* By fines and forfeitures. *Fourth.* By donations, bequests and devises. *Fifth.* By assessment upon the same subjects of taxation from which the revenue of the State was raised.

Such was the special Free School System offered by the State of Virginia to West Virginia counties in 1846. The three of these named in the act—Brooke, Jefferson and Kanawha—each voted upon the question of adoption in 1847. The first rejected it, while both of the others adopted it. Various other counties west of the mountains, within the next few years, voted upon the adoption of the General Free School Law, or the special act embracing its chief provisions. Marshall county rejected one of these in 1854; Hancock took similar action the next year; then Cabell and Wayne voted down a proposition to adopt a system prescribed for Patrick county. Thus it was that in 1860 but three counties west of the mountains had free schools. There were then fifty West Virginia counties and in forty-seven of them, with slight modifications, the old system had continued for nearly a century, and the "Old Field" school house, built of logs, used alike for school purposes and Divine worship, was present in nearly every neighborhood, and in neither cause were they void of results. We have said that the old time school house was a rude structure. This was an objectionable feature. But statistics of these times show that tens of thousands of boys and girls, sons and daughters of the rich and poor alike, attended these schools. The teachers were, many of them, highly educated men and they fulfilled their mission. In that Old Field school house, we see one of them yet! Clad in home-spun of brown-once-black, he stands by an apperture in the wall, called by courtesy a window, either mending pens or making new ones from the quills, from the wing of the goose, the

wild turkey, or, perchance, from that of the eagle—brave bird of the mountain—for some of the dozen flaxen-haired urchins who were afterward to be the boast of their country, or the warriors or magistrates of embryo States in the West. There they learned discipline, and to spell and read and write and cipher; but that nobler, independent manhood was due to instruction within, no more than exercise without. For did not the Romans, even the wealthiest of them, teach their sons and daughters to be tolerant of hunger and cold, to go barefoot on the campus and to swim the Tiber in January? May be there was not enough book lore in these Old Field schools, but the boys had their early privileges that other generations have not had. There was the brave walk through the sleet and the snow; the game of hide-and-seek among the chinquepin bushes, the bull-pen-ball, the scramble for the wild grapes, the chase of the flying-squirrel through the thickets of laurel, the bloom of which other boys and girls have made the State flower; the climbing high among the limbs to dislodge the raccoon from his hole in the black gum tree. We wonder where the boys are that went to the Old Field school at Bear Creek, Big Bend, Locust Knob, Sugar Camp Hollow, and a thousand other places among the West Virginia Hills. Many thousands of them stayed in the land of their nativity and they and their descendants became the home-builders of West Virginia. They helped shoot barbarism out of the Ohio Valley. Some went to become founders of other States. Some went away for a while and then came back to tell of steamboats and Richmond and Pittsburg and Cincinnati and fireworks: some warred with the Briton in 1812; others studied war with Scott and Taylor in Mexico. But others went to make names that are long to last: four early governors of Ohio attended the Old Field schools of Berkeley county; Reuben Chapman, one of the best governors Alabama ever had, attended the Old Field schools of Randolph county; Jesse Quinn Thornton, who wrote the first constitution of Oregon, attended the Old Field schools of Mason county; Lorenzo Waugh, who went to an Old Field school in Pocahontas county, then taught in the Old Field schools of Harrison and Mason counties, and afterwards gathered the first Methodist congregation ever assembled in the Sacramento Valley; James T. Farley attended the Old Field schools of Monroe county, then went to the Pacific coast, afterward to visit the home of his childhood, when a United States Senator from California; Thomas A. Morris attended an Old Field school in Cabell county and was afterward a distinguished bishop of the Methodist Episcopal church; Thomas and Samuel Mullody attended the Old Field schools of Hampshire county, and the former served two years as the tutor

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of the crown prince of Naples and died as president of Georgetown University; while the latter at the time of his death was president of Worcester College, Massachusetts; Stonewall Jackson attended an Old Field school in Lewis county, won distinction in Mexico, and gave up his life at Chancellorville as the hero of the Lost Cause; Jesse L. Reno attended an Old Field school in Ohio county, achieved honor in Mexico and died on South Mountain, Maryland, while gallantly leading the Ninth Army Corps in battle for the Union. No, the Old Field schools were not barren of results, but were rather a mighty factor in civilization.

WEST VIRGINIA ACADEMIES, SEMINARIES AND COLLEGES OF THE OLDEN TIME.

By far the most important, the most potent factors in early educational work in West Virginia were the many academies, which, as chartered institutions, were scattered over the State, and whose management and control were in the hands of the foremost men of the community, who were made bodies corporate by acts of the General Assembly of Virginia. The oldest of these was located at Shepherdstown. The exact date of its establishment is not known, but it antedated the Revolution. Reverend Robert Stubbs, who on the third of December, 1787, made affidavit that he had witnessed the test trial of James Rumsey's steamboat, on the Potomac, subscribed himself as "Teacher of the Academy of Shepherdstown." In the following partial list of these institutions, the number, together with date of incorporation, and place of establishment, in the order named, are given; that is to say:

1. The Academy at Shepherdstown, at Shepherdstown, in Jefferson county, incorporated in 17—.
2. The Randolph Academy, at Clarksburg, in Harrison county, incorporated December 31, 1787.
3. The Charlestown Academy, at Charles Town, in Jefferson county, incorporated December 25, 1797.
4. The Brooke Academy, at Wellsburg, in Brooke county, incorporated January 10, 1797.
5. The Mount Carmel School, at West Union, in Preston county—then Monongalia,—established in 1801.
6. The Lewisburg Academy, at Lewisburg, in Greenbrier county, incorporated in 1812.
7. The Lancasterian Academy, at Wheeling, in Ohio county, incorporated October 10, 1814.

8. The Monongalia Academy, at Morgantown, in Monongalia county, incorporated November 29, 1814.
9. The Mercer Academy, at Charleston in Kanawha county, incorporated November 29, 1818.
10. The Union Academy, at Union, in Monroe county, incorporated January 27, 1820.
11. The Martinsburg Academy, at Martinsburg, in Berkeley county, incorporated January 28, 1822.
12. The Romney Classical Institute, at Romney, in Hampshire county, established in 1824.
13. The Wheeling Academy, at Wheeling, in Ohio county, incorporated February 21, 1827.
14. The Seymour Academy, at Moorefield, in Hardy county, incorporated February 16, 1832.
15. The West Liberty Academy, at West Liberty, in Ohio county, incorporated March 20, 1837.
16. The Marshall Academy, at Guyandotte—now Huntington—Cabell county, incorporated March 13, 1838.
17. The Parkersburg Academy Association, at Parkersburg, in Wood county, incorporated April 5, 1838.
18. The Morgantown Female Academy, at Morgantown, in Monongalia county, incorporated January 30, 1839.
19. The Bethany College, at Bethany, in Brooke county, incorporated in the autumn of 1840.
20. The Preston Academy, at Kingwood, in Preston county, incorporated January 2, 1841.
21. The Huntersville Academy, at Huntersville, in Pocahontas county, incorporated January 18, 1842.
22. The Asbury Academy, at Parkersburg, in Wood county, incorporated February 8, 1842.
23. Little Levels Academy, at Hillsboro, in Pocahontas county, incorporated February 14, 1842.
24. The Rector College, at Pruntytown, in Taylor county, incorporated March 4, 1842.
25. The Greenbank Academy, at Greenbank, in Pocahontas county, incorporated March 26, 1842.
26. The Northwestern Academy, at Clarksburg, in Harrison county, incorporated March 26, 1842.
27. The Brandonville Academy, at Brandonville, in Preston county, incorporated in 1843.

28. The Weston Academy, at Weston, in Lewis county, incorporated January 18, 1844.
29. The Potomac Seminary, at Romney, in Hampshire county, incorporated December 12, 1846.
30. The Male and Female Academy, at Buckhannon, in Upshur county—then Lewis—incorporated February 1, 1847.
31. The Lewis County Seminary, at Weston, in Lewis county, incorporated March 20, 1847.
32. The Wheeling Female Seminary, at Wheeling, in Ohio county, incorporated January 24, 1848.
33. The Buffalo Academy, at Buffalo, in Putnam county, incorporated March 16, 1849.
34. The Academy of the Visitation, at Wheeling, in Ohio county, incorporated March 14, 1850.
36. The Wellsburg Female Academy, at Wellsburg, in Brooke county, incorporated March 17, 1851.
37. The Meade Collegiate Institute, at or near Parkersburg, incorporated March 21, 1851.
38. The South Branch Academical Institute, at Moorefield, in Hardy county, incorporated March 31, 1851.
39. The Fairmont Academy, at Fairmont, in Marion county, incorporated February 17, 1852.
40. The Wheeling Female Seminary, at Wheeling, in Ohio county, incorporated April 12, 1852.
41. The West Union Academy, at West Union, in Doddridge county, incorporated April 16, 1852.
42. The Morgan Academy, at Berkeley Springs, in Morgan county, incorporated January 10, 1853.
43. The Logan Institute, at Logan Court House, in Logan county, incorporated February 21, 1853.
44. The Ashton Academy, at Mercers Bottom, in Mason county, incorporated January 7, 1856.
45. The Point Pleasant Academy, at Point Pleasant, in Mason county, incorporated February 26, 1856.
46. The Polytechnic College, at Aracoma, in Logan county, incorporated February 28, 1856.
47. The Fairmont Male and Female Seminary, at Fairmont, in Marion county, incorporated March 12, 1856.
48. The Harper's Ferry Female Institute, at Harper's Ferry, in Jefferson county, incorporated March 18, 1856.

49. The Woodburn Female Seminary, at Morgantown, in Monongalia county, incorporated January 4, 1858.
50. The Lewisburg Female Institute, at Lewisburg, in Greenbrier county, incorporated April 7, 1858.
51. The Levelton Male and Female College, at Hillsboro, in Pocahontas county, incorporated February 27, 1860.
52. The Union College, at Union, in Monroe county, incorporated March 28, 1860.
53. The Parkersburg Classical and Scientific Institute, at Parkersburg, in Wood county, incorporated March 18, 1861.

OBSERVATIONS.

West Virginia was, indeed, a land of academies. A few of these named did but little or no work, but nearly all of them were as beacon lights of education set among the hills and valleys of the State. Shepherdstown Academy did nearly a hundred years of educational work. Randolph Academy was the first institution of learning incorporated west of the Allegheny mountains; it had among its first board of twenty-eight trustees Edmund Randolph, Benjamin Harrison, George Mason and Patrick Henry, and as part of its revenues it received one-eighth of the surveyor's fees of the counties of Harrison, Monongalia, Ohio and Randolph, which sums had been paid formerly to the support of the College of William and Mary. The act declared that the school was established for the benefit of the people of these four counties, which then embraced all of what is now West Virginia north of the Little Kanawha river. George Gowers, a graduate of Oxford, England, was its first principal, and for twenty years he taught Latin, Greek, Hebrew and the sciences within its walls. Its work extended over more than fifty years and among its teachers in 1830-40 was Francis H. Pierpont, afterward Governor of Virginia under the Reorganized Government. Charlestown Academy was long a center of learning and prepared young men to enter William and Mary College and other institutions of high order. Brooke Academy began its work in 1778—twenty-two years before the date of its incorporation—and was the earliest institution of learning on the Ohio river south of Pittsburg. After a successful career of more than half a century it was merged, in 1852, into Meade Collegiate Institute. The Mount Carmel school after doing forty-eight years of work, lost its building by fire and was then removed to another locality. The Linsly Academy was opened in 1808—four years before the date of its incorporation. It was a noted center of education and culture for more than

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BETHANY COLLEGE—Bethany, Brooke County.—(See p. 121.)

fifty years and from its halls went forth many legislators, great debaters, scientists and soldiers who made lasting names. The Lancasterian Academy was the beginning of the Linsly Institute of Wheeling, still a flourishing institution of learning after a successful career of almost a hundred years. The Monongahela Academy was for many years the most flourishing institution of learning on the banks of the Monongahela river, and in 1867, its property, including that of Woodburn Seminary, the whole valued at $51,000, was donated to the State by the people of Morgantown in consideration of the location of the University at that place. Mercer Academy did more than all things else to mold the educational sentiment of the Great Kanawha Valley nearly a century ago, and forty-six years of successful work is to be placed to its credit. Its property passed to the Board of Education under the Free School System, and the present high school building of Charleston bears the name of "Mercer" in commemoration of the old academy. The Romney Classical Institute exerted a great influence upon the educational work of the South Branch Valley for nearly sixty years, and its property—a valuable one—was, in 1870, donated to the State of West Virginia, in consideration of the location of the Schools for the Deaf and the Blind at Romney. The Seymour Academy was long the pride of Moorefield and the Upper South Branch Valley. The West Liberty Academy began its work in 1837; lost its building by fire in 1840, but was rebuilt and made the old town famous for many years; in 1870, it was sold to the State of West Virginia for $6,000 and became the nucleus of the Branch of the State Normal School. Marshall Academy was for a quarter of a century the most famous institution of learning in Western Virginia. Soon after it was opened, two boys—students—climbed high up among the branches of an old beech tree in the yard and carved their names in its smooth bark; one of these was afterward the first adjutant-general of West Virginia and long a judge of her courts; the other became a judge of the Court of Appeals of Louisiana. In 1850, the academy was erected into Marshall College, and in 1867 the Cabell county authorities gave its property worth $10,000, to West Virginia, thus securing the location of the State Normal School at that place. Rector College, a Baptist institution, at Pruntytown, had its beginning in the "Western Virginia Educational Society" of that place, which was incorporated March 28, 1838. In 1849, the Assembly provided that scholarships might be established in this institution, which, in 1850, had three professors in its faculty, fifty students, and a library of two thousand five hundred volumes. Bethany College, whose history is forever associated with the name of Alexender Campbell, the illustrious founder of the Chris-

tian church, is the oldest among the forty or fifty institutions of learning of that denomination. Under the name of Buffalo Academy it did eighteen years of work before being erected into a college. So that eighty years is the measure of its usefulness in education in West Virginia. By an act of Assembly in 1849 it was provided that scholarships might be created in this institution. The Little Levels Academy accomplished eighteen years of work among the mountains and in the valleys of Pocahontas county, and then its property was transferred to the Board of Education under the Free School System. The Preston Academy began its work under the administration of Doctor Alexander Martin, who was afterward the first president of the West Virginia University, and it was long a power for good. The Northwestern Virginia Academy at Clarksburg, a Methodist institution, had for its first principal the distinguished Gordon Battelle, whose successor was Doctor Martin, who came from Kingwood for the purpose; and he in turn was succeeded by Doctor William Ryland White, who had served twelve years when he was elected the first State Superintendent of Free Schools of West Virginia. The Academy building was erected in 1842, and the school at once took a high rank. In 1849, the General Assembly provided that scholarships might be established therein. The Male and Female Academy at Buckhannon did much to create the splendid educational sentiment which for half a century has prevailed in that locality, and to a greater extent now than ever before. The Potomac Seminary—now the Potomac Academy—still continues its good work begun at Romney fifty-seven years ago. The Lewis County Seminary was so successful that after ten years its name was changed and it was, by act of Assembly, erected into Weston College. The Wheeling Female Seminary was long under the management of Mrs. S. B. Thompson, and was very successful. In 1855, it was occupying its own building erected at a cost of $20,000. In addition to the regular academic course, full instruction was given in music, drawing and modern languages; the faculty then consisted of seven accomplished teachers. Throughout all the years since then, the institution has been filling its mission and the citizens of Wheeling are proud of it today. Buffalo Academy made an excellent record in the Great Kanawha Valley as a school of high grade, and then its property was sold to the Board of Education under the Free School System. The Meade Collegiate Institute was removed from Parkersburg to Wellsburg where is became the successor of Brooke Academy and did good work. The Academy of the Visitation began its work at the corner of Eoff and Fourteenth Streets in Wheeling in 1848, and there continued until 1865, when it was removed to Mount

De Chantal, an eminence in Pleasant Valley, two miles east of Wheeling, where for about forty years it has continued to train its students for the highest duties of life. Fifty-five years spans its period of work. The Fairmont Academy, and the Fairmont Male and Female Seminary did thorough work and paved the way for the location of the Branch of the State Normal School at that place. The Lewisburg Female Institute has for forty-five years been earning the splendid reputation and large patronage it now enjoys. West Union Academy did eight years work and the property was then sold by its board of trustees. The South Branch Academical Institute, the Morgan Academy, the Point Pleasant Academy and others had accomplished successful work and were still engaged in it in 1860.

These academies, seminaries and colleges had resulted in great good and had done much to create an interest in secondary and higher education. Many hundreds of young men had gone forth from them in quest of that learning that was to fit them for the highest callings in life. From the Eastern Pan-Handle and the Greenbrier Region, some went to the Virginia University at Charlottesville, or Washington College, at Lexington; from the northern part of the State, some went to Uniontown College, Jefferson College, or Washington College, Pennsylvania; while from the Great Kanawha Valley and the counties lying along the Ohio river, others went to the Ohio University at Athens.

Such, in brief, is the story of early educational work in West Virginia; and such, with the Old Field schools in vogue in forty-seven counties, Free Schools in three counties, and her many splendid academies, were her educational facilities in 1860. In 1848, John G. Jacob, then among the foremost literary men of West Virginia, when writing of educational matters said: "Under the General Law of Virginia, which makes quite liberal provision for common school education, though clogged with provisions which render it distasteful to the class it is intended to benefit, the facilities for acquiring a common school education are good, and where there is a disposition, there is abundant opportunity." West Virginia people had made the most of their opportunities, but they anxiously sought something better than they had known, and this was near at hand.

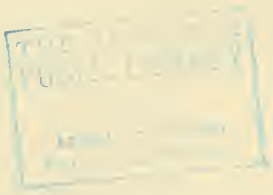
A NEW ERA IN EDUCATION IN WEST VIRGINIA.

With the rise of the New State, came a Free School System, such as the school men within its limits had longed to see.

The first step looking to the establishment of a Public School system for West Virginia, was taken on the 27th day of November, 1861, when

Honorable John Hall of Mason county, President of the first State Constitutional Convention, sitting at Wheeling, named a Committee on Education, consisting of Gordon Battelle, of Ohio county; William E. Stevenson, of Wood county; Robert Hagar, of Boone county; Thomas Trainer, of Marshall county; James W. Parsons, of Tucker county; William Walker, of Wyoming county, and George Sheetz, of Hampshire county. Gordon Battelle, chairman of the Committee, was a Methodist minister who had been principal of the old Northwestern Academy at Clarksburg for twelve years, and one of his associates, William E. Stevenson, was afterward the second governor of the State. These gentlemen went to work energetically and the Committee made its preliminary report on Wednesday, January 22, 1862, and a most interesting document it was. The amended and final report was made February 4th, ensuing. These two reports contained almost every provision that was afterward incorporated into the General School Law of the State, and from them were taken the sections relating to education which were then inserted in the first Constitution as framed at that time. The chief of these provisions were those providing for "An Invested or Irreducible School Fund"; for "the establishment and support of a thorough and efficient system of Free Schools;" for "the election of a General Superintendent of Free Schools"; for a "county superintendent for each county," and for "the election of such other officers as should be necessary to render the system effective." Thus was a Public School System fixed firmly in the organic law of the State.

The Constitution was ratified, and on the 20th of June, 1863, the statehood of West Virginia began. On that day the first Legislature of West Virginia assembled, and on Wednesday, June 24th,—four days later—Honorable John M. Phelps, another Mason county man, who had been elected President of the Senate, then sitting in the Linsly Institute at Wheeling, appointed a Senate Committee on Education consisting of John W. Atkinson, of Hancock county; Thomas K. McCann, of Greenbrier county; John B. Bowen, of Wayne county, Chester D. Hubbard, of Ohio county, and William E. Stevenson, of Wood county. At the same time, Spicer Patrick, of Kanawha county, Speaker of the House of Delegates, appointed a House Committee on Education composed of A. F. Ross, of Ohio county; S. R. Dawson, of Ritchie county; George C. Bowyer, of Putnam county; Daniel Sweeney, of Tyler county; and Thomas Copley, of Wayne county. The joint work of these two committees was the first school law of the State, known as Chapter CXXXVII of the Acts of 1863, passed December 10th of that year, and entitled "An Act providing for the Establish-



HAZELWOOD ASSEMBLY HALL—Interior View—West Virginia Colored Institute, Kanawha County—(See p. 122.)

ment of a System of Free Schools." It was largely the work of Mr. Ross of the House Committee, who was himself an efficient and experienced teacher who had served sixteen years as Professor of Ancient Languages in Bethany College, and later as Principal of West Liberty Academy. Under this law our school system had its origin and first years of development.

This law provided for the election of a State Superintendent of Free Schools by the joint vote of both branches of the Legislature, and this occurred on the first day of June, 1864, when William Ryland White was elected for the term of two years. He took the oath of office and entered upon the discharge of his duties. Thus the Free School System of the State began to be.

THE PROGRESS AND DEVELOPMENT OF THE SYSTEM.

The solicitude of the men who organized the State was never allayed, not even amid the clash of arms and the then uncertainty of the final results of the desperate conflict. Their purpose—that which was uppermost in their minds—was the founding of a Commonwealth with free schools and universal education. Whatever might come, posterity must be educated, for in that alone they saw the hope of the future. The result is our present Free School System—the richest treasure of West Virginia. Her good name, as well as the continuation of substantial prosperity, is entirely dependent upon the initial direction given to the minds of the young. Care on the one hand, neglect on the other bring forth responsive fruit to tell in after years in the grateful form of public virtue and enlightenment, or in the melancholy spectacle of public vice or popular ignorance and abasement. The wisdom of statesmen is never more wisely directed than when it aims to establish the one and guard against the other. Such statesmanship knows that it must act always by anticipation; knows that it is dealing with functions in a State of constant change and progression; that it is molding and shaping that which though incorporeal and intangible, bears direct analogy to that which is corporeal and material, in that it is impressible to good or evil, retains the shape and form to which it is molded, and, in its material powers, presents the perfection of the wise directing hand, or the distortion of wicked neglect.

That, therefore, which is the chief source of greatest gratification to all West Virginians and to those who have come to live among us, is the knowledge that for forty years our wisest statesmanship has been constantly and unerringly directed toward the advancement and promotion of every educational interest, and that the intellectual development has kept pace with the

material development of our State. That, while the productive energy opens up to the commerce of the world, our boundless resources of mine, of quarry and forest, which ages of the most active industry cannot exhaust, and while the product of factory, of shop, and forge, together with our coke and coal and iron and lumber, are taken up by the great arteries of trade and distributed to the marts and ports of the civilized world, the educational facilities of our children and children's children and the full growth of intellectual life among all classes of our people, have immeasurably grown and increased since this Great Mountain State began her career as a member of the American Union. Those who compare it with the unfolding of the mental life of sister commonwealths, stand in wonder and astonishment. West Virginia has, indeed, been converted into a land of free schools, of culture, of refinement and of a home life fitted to adorn the highest type of civilized and enlightened commonwealths.

THE ADMINISTRATION OF OUR FREE SCHOOL SYSTEM.

The administration of our school system is simple and effective, and therefore, easily understood by the people in whose interest it is designed.

The Following brief analysis will show this:

A.—Territorial Divisions for School Purposes.

1. The State.
2. The County.
3. The Magisterial District.
4. The Sub-District.
5. The Independent District.

B.—Grades of Schools.

1. Primary Schools.
2. Graded Schools.
3. High Schools.
4. The State Normal School.
5. The State University.
6. Schools for the Deaf and the Blind.

C.—The Officers of the System.

1. The State Superintendent of Free Schools.
2. The County Superintendent.
3. The Board of Education in Magisterial and Independent Districts.
   (*a*) The President.

(*b*) The Commissioners—two in number.

(*c*) The Secretary of the Board.

4. The Trustees—three in number—in each sub-district.

D.—Teachers' Examinations.

1. The State Board of Examiners.
   (*a*) State Certificates.
2. The State Uniform Examinations.
   (*a*) County Certificates.

The State Superintendent of Free Schools:—This official is at the head of the free school system of the State. He must be a person of good moral character, of temperate habits, of literary acquirements, and of skill and experience in the art of teaching. He has supervision of all county superintendents of free schools, to whom he transmits all blanks and forms necessary in the details of the system to secure its uniform operation throughout the State, and is required to do all possible toward its perfection. He prepares questions for the examination of teachers, transmits same to county superintendents, grades manuscripts and issues county certificates to teachers. Annually, he transmits to the Governor a report of the condition of the free schools within the State.

The County Superintendent:—This is the chief school officer of the county and his qualifications are the same as those of the State Superintendent. He is required to visit all the schools of his county; note the course and methods of instruction, and give such directions in the art of teaching as to him shall seem necessary. Annually, he transmits to the State Superintendent a detailed report of the condition and character of the schools within his county together with suggestions as to the improvement of the same.

The Board of Education:—Each county is divided into not fewer than three nor more than ten Magisterial Districts in each of which there is a Board of Education composed of a President and two Commissioners, each elected for a term of four years. This Board is a corporate body; it lays the district levies for its Teachers' and Building Funds; erects school houses; fixes salaries of teachers and length of term of school. School monies can be disbursed only on its order signed by the Secretary and countersigned by the President. It elects a secretary outside of its own number.

The Board of Trustees:—Each Magisterial District is, in turn, divided into Sub-Districts from half a dozen to forty, fifty, or even more in number, in each of which there is a primary school. For the management of each of these schools the Board of Education appoints three trustees, who

keep the school house in repair, supply fuel and other articles necessary to the success of the school; employ teachers and sign orders on the Board of Education for the payment of their salaries, as provided by law.

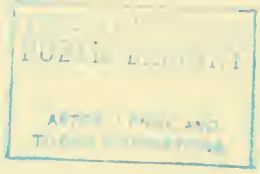
The Independent School District:—Independent School Districts are those created by special legislative enactment. Each embraces a town of some importance, and its corporate boundary is sometimes identical with that of the school districts. Often, however, the latter includes a more extensive area. Usually there is a Board of Education composed of three members. But in some, the mayor and common council of the town manage the school affairs of the Independent District. There are about fifty of these in the State.

The County Board of Examiners:—In each county there is a Board of Examiners composed of three members, one being the County Superintendent, who is *ex-officio* President; and two experienced teachers, each of whom is elected by the presidents of the Boards of Education of the Magisterial Districts for a term of two years, and who must have received a teacher's State certificate or a number one county certificate, or be a graduate of some reputable school. It receives the questions for examination from the State Superintendent, and after conducting the examination of teachers, forwards the manuscripts to that official.

The State Board of Examiners:—The State Board of Examiners consists of five competent persons—one from each Congressional District—appointed by the State Superintendent of Schools for a term of four years. It issues two grades of certificates, the first class for twelve years, the second for six years. The latter is issued to graduates of the State University, of the Normal School and its Branches, and to the schools doing similar work, without examination, and both grades are renewable without examination, if the holder continues to teach.

The Uniform State Examination:—No teacher can teach in any of the public schools without a certificate, and examinations for these are uniform throughout the State, being held in every county therein on the same date. The State Superintendent prepares the questions and these are sent under seal to the several county superintendents, who, on the day of the beginning of the examination, in the presence of the assembled applicants and the members of the county boards of examiners, open the same. When the work is completed the county superintendents send all manuscripts to the State Superintendent to be graded, and certificates based thereon are issued to applicants. These are valid throughout the State.

BRANCH OF THE STATE NORMAL SCHOOL—Athens, Mercer County—(See p. 119.)



Compulsory School Attendance:—Every person in the State having under his control a child or children between the ages of eight and fourteen years, is required to send such child or children to some public school for a period of twenty weeks yearly, commencing with the beginning of the school term. Every failure to do this is a misdemeanor, and for the first offense the fine is two dollars, and five dollars for each subsequent offense. The Board of Education in each Magisterial and Independent District is required to appoint a truant officer, whose duty it is to enforce the provisions of law relating to school attendance.

THE SCHOOL RESOURCES OF THE STATE.

The education of her youth is the chief business of the State, and for this her people expend more money annually than for all other purposes combined. West Virginia has entered into an implied contract by the terms and conditions of which the State has agreed to place the best possible school within the reach of every child born on its soil or who shall here find a home. The money with which to do this is derived from three sources; viz.: (1) Interest on the School Fund. (2) Distribution of the General School Fund. (3) Local levies in the Magisterial and Independent Districts. These we notice briefly.

THE SCHOOL FUND.

This is usually known as the Irreducible School Fund, because its principal can not be reduced; but often called the Invested School Fund, because its principal is required to be invested in interest-bearing securities.

The Origin of This Fund:—For the origin of this fund we must go back into the legislative annals of Virginia for nearly a hundred years—more than fifty years before the division of the State and the formation of West Virginia—or to the year 1810, when the General Assembly of the Old State created the Literary Fund. This was invested in stocks, bonds, or other approved securities, and at the beginning of the Civil War, it amounted to a large sum, of which $120,000 was invested in bank stock in Wheeling, Fairmont and Parkersburg, and this investment became the basis of the Permanent, or Invested School Fund of the new State of West Virginia. On the 3rd day of February, 1863, the General Assembly sitting at Wheeling under the "Reorganized or Restored Government of Virginia," passed an act by the provisions of which the titles to all property of whatever kind belonging to the State of Virginia and within the bounds of the proposed new State of West Virginia, should pass from the former and vest in

the latter. Under this law our State became the possessor of certain lands, buildings, roads, and investments, including the $120,000 of the Literary Fund represented in bank stock in the three cities named.

The framers of the first Constitution of West Virginia, being aware that the new State would thus become the possessor of this bank stock, framed Article X of that first organic law of the State so as to provide as follows:

"All moneys accruing to this State, being the proceeds of forfeited, delinquent and unappropriated lands; and of lands heretofore sold for taxes and purchased by the State of Virginia, if hereafter redeemed or sold to others than this State; all grants, devises or bequests that may be made to this State for the purpose of education, or where the purposes of such grants, devises, or bequests are not specified; this State's just share of the 'Literary Fund' of Virginia, whether paid over or otherwise liquidated, and any sums of money, stocks or property which this State shall have the right to claim from Virginia for educational purposes; the proceeds of the estates of all persons who may die without leaving a will or heir, and of all escheated lands; the proceeds of any taxes that may be levied on the revenues of any corporation hereafter created; all monies which may be paid as an equivalent for exemption from military duty; and such sums as may be, from time to time, appropriated by the Legislature for the purpose, shall be set apart as a separate fund to be called the 'School Fund,' and invested under such regulations as may be prescribed by law."

By a constitutional amendment in 1902, this Fund is now limited to $1,000,000, and all money and taxes previously paid into the State Treasury to its credit are now added to the General School Fund for the support of free schools.

The General School Fund: — This is often called the Distributable School Fund, because it is annually distributed. The sources from which it is derived are: (1) A levy of ten cents on each one hundred dollars' valuation; (2) the net proceeds of all fines; (3) the proceeds of all Capitation Tax, and (4) the proceeds of the Invested School Fund. The gross amount of this General Fund is ascertained by the Auditor in the month of June of each year, and that official, after deducting the salaries of county superintendents, and all expenses of the office of the State Superintendent of Free Schools, certifies the net amount of the Fund to the State Superintendent, who then apportions it, on the basis of the enumeration of school youths, to the several counties and cities of the State as provided by law. The total amount of this Fund thus distributed in July, 1903, was $530,666.07.

The Local Levies in the Independent and Magisterial Districts. —Annually, on the first Monday in July, or as soon as practicable thereafter, the Boards of Education in all Magisterial and Independent Districts, meet and lay levies for a "Teachers' Fund" sufficient to pay the salaries of teachers for the length of term fixed which cannot be less than five months. At the same time they lay levies for the "Building Fund," which is to provide school houses and grounds, furniture, fixtures and apparatus, with fuel and other things necessary for the comfort and convenience of the school.

SCHOOL STATISTICS OF THE STATE.

After all, it is statistics which convey the best and most accurate insight into that of which we would learn, and the following figures exhibit to view, the educational work of West Virginia as it was in the year 1903, when there were 6,081 school houses, in which 7,036 teachers were employed; the average daily attendance of pupils was, white, 146,974; colored, 5,200; total, 152,174. Enrollment of pupils, white, 228,129; colored, 7,886; total, 236,015. Enumeration of school youth, white, 303,834; colored, 11,976; total, 315,810. The total of local levies for Building Fund was $967,225.38; and that for Teachers' Fund, $1,668,013.09; to which was added $530,666.07, from the State Distributable Fund. The total valuation of all school property, including houses, lands, furniture, apparatus, and libraries, was $4,561,308.97. Such are some of the school statistics of West Virginia.

THE STATE FLOWER.

The early French explorers knew the Allegheny mountains as *Mons de Lauriers,* or "Mountains of the Laurel," and the name is still preserved in that of Laurel Mountain and Laurel Hill of northern West Virginia and Pennsylvania. This was because of the presence of the Laurel or *Rhododendron,* which, with its several varieties covers the mountain sides and overhangs the banks of rushing torrents both on the Cumberland Plateau and the Allegheny Highland. The *Rhododendron Maximum,* or Great Laurel, grows most luxuriantly in cool sequestered shades covering large areas with impenetrable "laurel thickets," the retreat of wild animals and the barrier of the hunter. It is rarely found below an altitude of nine hundred feet. The Mountain Ivy—*Kalmia Latifolia*—another variety, is often called the Calico Bush; it attains a height of from eight to ten feet and covers many parts of the mountains with dense thickets; it is conspicuous for the profusion of its white, or pink, angular, bell-shaped, and delicately dotted flowers. Lower down in the hilly region, the *Azalia* pre-

sents several sub-varieties among which are the orange and lemon colored, growing in large, dense clusters and adding singular beauty to the landscape from the conspicuous glow of the masses in bloom. Farther down toward the Ohio there is a white variety peculiar to that region, clinging to the rocky hillsides and overhanging the cliffs bordering that stream. High up on the rugged mountain slopes, along the eastern margin of the State, is found the *Wicky,* or Sheep Laurel, a smaller variety of the Ivy. It is more erect and less dense than other varieties, and the flowers are more deeply tinted.

The subject of an official State Flower was long a theme for discussion among teachers and others interested in our school work, but this did not take form until 1901, when Governor Atkinson, in his message to the Legislature, recommended the adoption of a State Flower and suggested the *Rhododendron Maximum,* or Great Laurel, as being most appropriate. Then Hon. Thomas C. Miller, State Superintendent of Schools, became much interested, and under his direction, the school children of the State, on the 26th of November, 1902, voted upon the question of selection. There were 35,834 votes cast, of which 19,131 were for the *Rhododendron Maximum;* 3,663, for the honeysuckle; 3,387, for the wild rose; 3,162, for the goldenrod, and the remainder for various other flowers. Then, Governor White, in his message to the Legislature in 1903, referred to the recommendation of his predecessor, and to the action of the children, both of which he approved, and on the 8th of January, 1903, the Legislature adopted Joint Resolution No. 8, as follows:

"*Resolved by the Legislature of West Virginia,* That the Rhododendron or Big Laurel be and it is hereby designated as the official State Flower to be used as such at all proper times and places."

WEST VIRGINIA'S EDUCATIONAL INSTITUTIONS.

THE STATE UNIVERSITY.

The State University stands at the head of the educational system of West Virginia and offers instruction free to all the residents of the State, and nominally so to those from other States. July 2, 1862, Congress passed an act donating public lands to the several States and Territories that would provide colleges for the benefit of Agriculture and the Mechanic Arts. The quantity was to be equal to thirty thousand acres for each senator and representative in Congress to which the several States were entitled under the census of 1860. In many States there were no public lands and to such, landscrip representing these at $1.25 per acre, was given. This was to be

BRANCH OF THE STATE NORMAL SCHOOL—Glenville, Gilmer County—(See p. 118.)

sold and the proceeds thereof applied to the uses and purposes prescribed in the said act. At this time, West Virginia was not a State, but by an act of her Legislature enacted October 3, 1863, when she had been in the Union but four months, she accepted the proposition of Congress; and January 30, 1864, the Legislature requested her Senators and Representatives to procure from Congress legislation requisite to secure to West Virginia an equal participation in the benefits of the act of Congress with the other States of the Union. In this they were successful. Congress complied with this request by act of April 19, 1864, and the landscrip having been received, was sold by the Governor and converted into bonds of the United States, the amount being $80,000, the par value of which, in 1867, was $90,000, neither interest nor principal of which could ever be used for the purchase, erection or repair of buildings.

On the 9th of January, 1866, the Board of Trustees of Monongalia Academy tendered to the State the buildings, property and funds of the said academy, including the property known as Woodburn Female Seminary, in the following words, to-wit:

"Resolved, That this Board tender to the Legislature of West Virginia, all the real estate and personal effects held as the property of 'Monongalia Academy,' including the property known as 'Woodburn Female Seminary,' amounting as a whole to the following estimated value, viz.:

"Woodburn Female Seminary	$25,000
"Monongalia Academy and dwelling	15,000
"Cash, bonds, bank stock, &c	10,000
"Library and other personal property	1,000
"Amounting to	$51,000

To be absolutely held and used by the State of West Virginia, on the express condition that the contemplated Agricultural College be located permanently at or near Morgantown." The Legislature considered the claims of Point Pleasant, Bethany, Frankford, Greenwood, Harrisville, and Morgantown, and on the 31st of January, 1867, by a vote of 17 to 5 in the Senate, and of 32 to 21 in the House, decided in favor of Morgantown. An act of February 7, 1867, directed Governor Arthur I. Boreman to appoint a Board of Regents composed of one member from each of the eleven senatorial districts, to establish and control the proposed Agricultural College. He named Z. H. Logan, D. B. Dorsey, G. M. Hagans, Samuel Billingslea, W. E. Stevenson, J. Loomis Gould, W. W. Harper, Mark Poor, Samuel Young,

Joseph T. Hoke and James Carskadon. These gentlemen assembled in the hall of Woodburn Female Seminary at Morgantown, on the 3rd of April, 1867, and having organized the Board, then organized the "Agricultural College of West Virginia," and that day elected Reverend Alexander Martin, D. D., as its first President. An act of the Legislature passed December 4, 1868, changed the name of the Institution to that of the West Virginia University, Governor Boreman having recommended this in a special message on the 30th of the preceding January.

Through its direct predecessors, the institution now known everywhere as West Virginia University reaches back over a period of nearly one hundred years. Monongalia Academy was established in 1814, and existed as a prosperous school of high grade until it became a part of the University in 1867. At the same time, Woodburn Seminary, standing exactly where Woodburn Hall now stands, was merged into the new and larger institution. Since the year 1867, the words college and university have taken the place of academy. Thus, the institution existed as Monongalia Academy, from November 29, 1814 to April 3, 1867—a period of more than fifty-two years; then as the Agricultural College of West Virginia from April 3, 1867 to December 4, 1868—nearly two years: and since the last date, as the West Virginia University.

The institution has had a phenomenal growth. It stands today in what was, a little more than a century ago, the rough pathway through the forest along which marched the pioneers of this region, down the valley of the Monongahela to Fort Pitt, there to choose the first representative from the region west of the Alleghenies, to a seat in the Continental Congress. In 1867, its property was valued at fifty-one thousand dollars; now it is worth eleven hundred thousand. Then its faculty was composed of the President and four professors; now it numbers nearly seventy members whose *almae matres* are the leading colleges and universities of the world. Then it had fewer than thirty students; now it has nearly a thousand, among them, being representatives from every county of the State; nearly a hundred from Pennsylvania, together with many from other States and from various foreign countries.

Among the seven hundred and fifty graduates who have gone out from its halls are five college presidents, forty-seven college professors, three State superintendents of free schools, ten normal school principals, twenty-five normal school teachers, ten bank cashiers, ten judges, forty-five preachers, twenty-eight doctors, six United States army officers, one United States senator, four members of Congress, one governor, one attorney-general, one

State geologist, ten State senators, thirty-five members of the House of Delegates, sixty-five engineers (civil, mechanical, mining) forty-three superintendents or principals of high schools and schools of similar grade, sixteen, editors, about twenty-five business men and farmers, and something more than two hundred and twenty-five lawyers. This list includes, also, the first sheriff of Manila, a clerk of the supreme court of the State, a clerk of the State Senate, a clerk of the House of Delegates, a chief mine inspector, and a weather bureau director of South America.

These alumni live in thirty-seven States, besides Austria, Mexico, Japan, Siam, India, the Argentine Republic, Bulgaria, and the Philippine Islands.

The Organization: — The University organization consists of the following colleges and schools:

1. The College of Arts and Sciences.
2. The College of Engineering and Mechanic Arts.
3. The College of Agriculture.
4. The College of Law.
5. The College of Medicine.
6. The School of Music.
7. The Commercial School.
8. The Preparatory Schools.
9. The School of Fine Arts.
10. The School of Military Science and Tactics.

To all who are interested in a regular college course of the highest standard, or in any branch of Engineering, or the Law, or Agriculture, or Horticulture, or Medicine, or the Fine Arts, or Music, or Military Training, or a Commercial Course, the State offers its services through the West Virginia University.

Its Buildings:—It has ten buildings besides those of the Experiment Farm, (not counting the dormitories, boarding halls, and chapter houses). It has thoroughly modern laboratories, libraries, and shops.

There are eight brick and stone buildings as follows:

1. Woodburn Hall, a three-story building, containing lecture rooms and the Botanical and Zoological laboratories. The third floor of this building is occupied by the School of Music.

2. Martin Hall, a three-story building, containing lecture rooms and society halls.

3. Science Hall, a four-story building containing lecture rooms, laboratories for the Departments of Physics, Chemistry, Geology, rooms for Drawing and painting, and the museum of Geology and Palæontology, and also the President's office.

4. Commencement Hall, a large two-story building, containing a commodious chapel, with 1,500 seats, and the gymnasium.

5. Agricultural Experiment Station, a two-story building containing laboratories, lecture rooms and offices.

6. An Armory and Drill Hall for the Military Department.

7. A Mechanical Hall, occupied by the College of Engineering and Mechanic Arts.

8. A Library Building, containing the general library, reading and seminar rooms.

The Location:—The grounds are of more than twenty-five acres in extent and, from the splendid halls looking out from among the grand old trees, a beautiful panorama is spread out to the gaze of the observer. There is the broad sweeping Monongahela with its historic associations of pioneer and later times; the long, curving, serpentine tracks of the railroad along its banks; the high bridge spanning its broad bosom; the busy bustling town with its nine thousand inhabitants stretching away on both its sides; the sloping, encircling hills on every hand, and away toward the sunrise the blue mountains—the whole scene presenting a picture where

"Not ivy-clad walls that are hoary with time,
But God's touch of beauty makes all sublime."

THE UNIVERSITY PREPARATORY SCHOOL AT MONTGOMERY.

There are in the State two University schools. The first of these is the Preparatory School of the West Virginia University, at Montgomery, in Fayette county, which was established under the provisions of an act of the Legislature passed February 16, 1895. The Montgomery heirs donated two acres of land for the erection of suitable buildings, and on January 4, 1897, the school was opened for students.

The State Superintendent of Free Schools, and two regents, chosen from among those of the University, exercise control, though the full Board may decide on matters of importance.

The President of the University is *ex-officio* president, and the course of study at Montgomery is subject to his approval, being confined strictly to the regular preparatory work and to such work in the common branches as is absolutely necessary for the study of the higher branches.

THE UNIVERSITY PREPARATORY SCHOOL AT KEYSER.

The Keyser Preparatory School, the second of the University schools, has been established at Keyser, in Mineral county, primarily for fitting

BRANCH OF THE STATE NORMAL SCHOOL—Shepherdstown, Jefferson County.—(See p. 117.)

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young men and women for entrance to the course of the West Virginia University. However, careful attention is given to directing the work of such students as may find it impossible to enter upon a college course after leaving this school. It was established by act of the Legislature in 1901.

No more beautiful school site is to be found anywhere in West Virginia than that upon which the Keyser Preparatory School stands. It is an historic one, being "Old Fort Hill," upon which stood a Union fortification in time of the Civil War. It affords a splendid view of the famous and beautiful New Creek Valley on one side, and on the other, of the Back Bone Ridge of the Allegheny Mountains, across the Potomac in Maryland.

THE WEST VIRGINIA STATE NORMAL SCHOOL AND ITS BRANCHES.

The greatest need of the Free School System in its early years was a corps of trained teachers and there was no source from which those could be obtained. Hon. W. R. White, the first State Superintendent of Free Schools, led in the movement to secure a normal, or training school, in which they might be fitted for their work. In the autumn of 1864, he declared to the Legislature that "It would be better to suspend the public schools of the State for two years and donate the entire school revenues for that time to the establishment and endowment of a State Normal School, than to have none at all." That body heard his plea and on the 3rd of February, 1865, it passed an act directing the Governor to appoint "A Commission, consisting of five persons to examine and report upon a definite plan, for the location, arrangement, and support of one or more normal institutions." This is the first reference to a normal school to be found in the legislative annals of the State.

In his message to the Legislature, January 16, 1866, Governor Boreman, when calling the attention of that body to that part of the report of Superintendent White relating to normal schools, said: "The want of competent teachers is sorely felt throughout the State, and is one of the greatest difficulties in putting into successful operation our Free School System, and, indeed, of keeping up primary schools of any character whatever. Normal schools may be made the means of relieving us of this difficulty by affording special facilities to those who desire to teach for preparing themselves for the arduous and important duties of their vocation."

Acting upon the recommendations of Superintendent White and Governor Boreman, the House Committee on Education, on the 12th of February,

1866, reported through its chairman, Thomas H. Trainer, House Bill No. 89, "A bill for the Establishment of a State Normal School." This was read a first time and ordered printed. Coming up on a second reading five days later, it was laid on the table where it remained six days and was then taken therefrom and referred back to the Committee on Education. A substitute was reported, but it, too, was tabled, and not again taken up during the session.

The friends of the measure were not dismayed. On the contrary the school men in the educational centers were more determined than ever, and under the leadership of Superintendent White, pressed the Legislature for favorable action. Governor Boreman in his message to that body, again renewed his recommendation, urging the need of a teachers' training school. Accordingly the now venerable General Thomas M. Harris, of Ritchie county, on the 4th of February, 1867, introduced House Bill No. 76, "A Bill for the Establishment of a State Normal School." There were delays and modifications, but this bill became a law, on the 27th of February ensuing, and fixed the location of the Normal School at Marshall College in Cabell county, "For the instruction and practice of teachers of common schools in the science of education and the art of teaching."

THE MARSHALL COLLEGE STATE NORMAL SCHOOL.

It has been stated that Marshall Academy, named in honor of the renowned jurist, John Marshall, was incorporated by an act of the General Assembly of Virginia, March 13, 1838. James Holderby and wife, on the 30th of June of that year, deeded to the trustees a lot—one and a half acres—for the express purpose for an academy and for no other use." The money was received and a handsome two-story brick structure erected. For several years previously an "Old Field School" was taught in a log house near its site by Isaac N. Peck, a teacher of more than ordinary scholarship, and he was now installed as the first principal of Marshall Academy. Soon the institution became very popular and more than a hundred students were enrolled. After three years Peck was succeeded by James H. Patton, and the school continued with varying success until 1858, when the property passed into the possession of the Methodist Episcopal Church South, and by another act of Assembly it was incorporated on the 14th day of March of that year as Marshall College. With its title thus enlarged, work was now outlined on a more pretentious plan. New buildings were erected, other improvements made, and the school continued until 1861, when the Civil War began and the doors of the institution were closed and not opened again

for school purposes until 1867. Meantime, the property had been sold by the courts to satisfy an indebtedness created in 1858, when the improvements were made.

The act of February 27, 1867, creating the Marshall College State Normal School, carried with it an appropriation of $10,000, and provided for the expenditure of a sum not to exceed $30,000, but prohibited any outlay whatever of the State's funds until $10,000 had been raised by the people of Cabell county; but the Board of Regents were authorized to receive the Marshall College property in lieu of this sum; and the authorities of the said county were authorized to submit to the voters the question of laying a levy of five thousand dollars upon the taxable property of the county. This was done; the college property deeded to the State; a meeting of the Board of Regents held at the town of Guyandotte; ten acres of land purchased for $1,000 to extend the grounds; and the school opened under State auspices on the 15th of June, 1868, with Samuel R. Thompson as principal. Since that time, tens of thousands of dollars have been expended upon the buildings—now among the best in the State. The splendid grounds, rectangular in shape, have a frontage of 620 feet on Sixteenth Street, and 1,000 feet on Third Avenue. When the institution passed under State control, the wide bottoms on every hand were a scene of corn and wheat fields; but now a city—Huntington—with its thirteen thousand busy people, has sprung up where these were, thus bringing the institution into touch with the vigor and energy of business life on every hand. Yet, it still affords amid the shady trees of its campus, the quiet retirement so desirable to the student.

There are five branches of the State Normal School, and these are now to be noticed.

BRANCH OF THE STATE NORMAL SCHOOL AT FAIRMONT.

On an eminence within the corporate limits of the town of Fairmont in Marion county, stands a splendid structure known as the "Fairmont State Normal School Building." From its dome a view may be had of the beautiful Monongahela and of all the region round about. It was here that the first training school for teachers within the State was opened. This was a private enterprise undertaken by Professor J. N. Boyd in the summer of 1865, the room being in the basement of the Methodist Protestant church. His aim was to train those in attendance, not only in the subject matter of the common branches but in the best methods of teaching them. His term was ten weeks, closing in time to permit the students to teach during the autumn and winter.

Interest in this work increased to such an extent in the locality that on the first day of February, 1866, a charter was issued from the office of the Secretary of State to "The Regency of the West Virginia Normal School," created for the purpose of establishing and conducting a normal school at Fairmont in the county of Marion. The incorporators were Prof. J. N. Boyd, A. Brooks Fleming, Oliver Jackson, Doctor D. B. Dorsey, Ellery R. Hall, Thomas A. Fleming, J. J. Burns, T. A. Maulsby, J. H. Brownfield and J. C. Beeson. An organization was effected by the election of Oliver Jackson as president, and at once an application was made to the Legislature for an appropriation from the State to assist in purchasing or erecting buildings adequate to the demands of such a school. An appropriation of $5,000, was made for this purpose, conditioned upon the school being kept open eight months in the year, and the governor was directed to appoint five discreet citizens of the State, who, together with the regency, should disburse the money, the State to hold a lien upon the property of the corporation. A lot was purchased for $1,500, and in 1867, work commenced on a two-story brick building which was approaching completion when, on the 4th of March, 1868, an act was passed directing the State Superintendent of Free Schools to purchase the property of the Regency at Fairmont at a price not to exceed $2,000. It was further provided that if the purchase be made, a Branch of the State Normal School should be opened at that place with as little delay as possible. The sum of $3,000 was appropriated to pay for furnishing and equipping the school, if transferred to the State, but no part of the appropriations was to be expended until Marion county should have paid into the State Treasury the sum of $2,000. On the 9th of March ensuing, all these conditions were complied with, and with Dr. W. R. White as first principal, the school under State auspices opened its doors to students in the spring of 1868. Such was the beginning of the Fairmont State Normal School and since that opening day, a great work has been done by this institution.

BRANCH OF THE STATE NORMAL SCHOOL AT WEST LIBERTY.

On a sloping hill side, eleven miles east of the city of Wheeling in Ohio county, is the pretty little town of West Liberty. In the second year of the Revolution it became the county seat of Ohio county, and was then the only seat of justice in the Mississippi Valley. The town was incorporated on the 29th of November, 1787, and was for years the "metropolis" of the Northern Pan-Handle. Here is located the West Liberty Branch of the State Normal School. It has been seen that the West Liberty

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Main Building. Ladies' Hall.

WEST VIRGINIA CONFERENCE SEMINARY—Buckhannon, Upshur County—(See p. 125.)

Academy was incorporated in 1838, and the same year it was opened with Nathan Shotwell as first principal, and sixty-five students enrolled. A good substantial brick structure was speedily erected by the contributions of friends, but this was destroyed by fire in 1840. Thenceforward for several years the school was continued in such quarters as could be secured; but in 1857, public spirited citizens made contributions and a new building adapted to the needs of the school arose on the ruins of the old one. Among those to whom the honor is especially due for their efforts in forwarding this enterprise, were Colonel W. B. Curtis, M. M. Dunlap, Peter Delaplaine, Joseph Waddell and George D. Bonar. Upon the completion of the new building, A. F. Ross, A. M., became Principal. He had been professor of ancient languages in Bethany College, and, later, while a member of the House Committee on Education in 1863, wrote the first school law of the State. On March 4, 1861, an act was passed by the Virginia Assembly authorizing a loan of $5,000 from the Literary Fund to the trustees of West Liberty Academy, but by an ordinance of the Convention, June 28, 1861—secret session—this act was repealed. The Civil War was at hand, and we hear but little more of the Academy until February 6, 1867, when the West Virginia Legislature authorized the trustees to sell the property; the State Superintendent of Free Schools to purchase it, and appropriated $6,000 for this purpose. There were delays, but the sale and purchase were made, the title vesting in the Board of Regents of the State Normal School. Then on March 1, 1870, it was set forth that the building known as the "Academy Building" at West Liberty, which had been purchased by the Board for a branch of the State Normal School, should be placed upon the same footing as the other branches thereof, and the building put in proper repair for immediate use. This was done and the school under State management was opened to students May 2, 1870, with Professor F. H. Crago as first principal. For thirty-four years it has been doing excellent work. In 1901, Principal W. L. McCown interested William H. Hearne, Esq., of Wheeling, in the work, and he has, thus far, contributed $1,785, to be used in assisting young men and women to attend the school who could not otherwise have done so.

BRANCH OF THE STATE NORMAL SCHOOL AT SHEPHERDSTOWN.

Shepherdstown, the oldest town in West Virginia, known in the early history of the State as New Mecklenburg, and settled by German mechanics and farmers from Pennsylvania, is situated on the right bank of the Potomac, and overlooking the broad reach of that river on which in 1784, George Washington and other distinguished men of the day witnessed the

successful trial voyage of James Rumsey's boat—the first steamboat in the world. Just below the town is the "Old Pack-Horse Ford" across the Potomac, which was the gateway through which passed the pioneer settlers of the Shenandoah Valley and the old part of West Virginia. Mountains and level stretches of the far-famed Shenandoah Valley, make the scenery of the surrounding region grand and picturesque. But a little way off, across the Potomac, is the battlefield of Antietam and the towering monuments thereon, and the National Cemetery may be seen from points near the building of the Branch of the State Normal School at Shepherdstown. On the 26th of January, 1865, the Legislature passed an act removing the seat of Justice of Jefferson county from Charles Town to Shepherdstown, where it continued to be until by act of February 23, 1871, it was returned to Charles Town in March of that year. While at Shepherdstown the court occupied a brick building erected by Rezin Davis Shepherd, to which two wings were added at public expense. Upon the removal of the public records, Shepherd Brooks, Esq., secured from the owner a lease of the building for educational purposes. A Board of Trustees was incorporated for the proposed school, under the name of the "Trustees of Shepherd College," and a school known as the "Classical and Scientific Institute" was opened in the Autumn of 1871. But this was not to continue long, for on the 27th of February, 1872, the Legislature passed an act establishing a Branch of the State Normal School at Shepherd College, for the instruction and practice of teachers of free schools in the science of education and the art of teaching; and the school under State auspices was opened to students November 21, 1872. Then there was additional legislation and it was not until September, 1873, that the full normal course was in operation with Joseph McMurran, A. M., as the first principal. For thirty-two years this institution has been an important factor in the education of the youth of the Eastern Pan-Handle and adjoining counties.

BRANCH OF THE STATE NORMAL SCHOOL AT GLENVILLE.

High up in the valley of the Little Kanawha river, seventy-five miles from its mouth, stands the busy little town of Glenville, the seat of justice of Gilmer county. There on an eminence two hundred feet above the town, and from which may be seen the winding course of the little river, stands the commodious brick structure known as the State Normal School Building. It is not the outgrowth of any previously existing school, but owes its existence to an act passed by the Legislature February 19, 1872, providing for the establishment of a Branch of the State Normal School at Glenville, West

Virginia. This act carried with it a provision that the people of Glenville should provide suitable buildings. This was readily agreed to by the citizens; among the contributors were Milton Norris and S. L. Ruddell. Pending the purchase of the buildings, the school was opened in the old Court House.

The Glenville Normal School was first opened to receive students on January 14, 1873. It was through the active efforts of T. M. Marshall, acting principal, that the school was so soon organized after the bill providing for it became a law. The first Normal School building was a two-story frame dwelling, which, with some slight changes in the interior, served the purpose of a school house. In 1885 the Legislature appropriated five thousand dollars for a new building and a neat brick structure was constructed on the site of the former one. From its halls have gone forth many bright young men and women who have broadened the field of work and moulded the educational sentiment of the Little Kanawha Valley.

BRANCH OF THE STATE NORMAL SCHOOL AT ATHENS.

High up on a mountain plateau of the Allegheny Highland, 2,800 feet above sea-level, where the sky is fretted with peaks and crests on every hand, is the pretty little Alpine village of Athens in Mercer county. Here the student comes in contact with nature in its primitive beauty and sublimity. From an aesthetic standpoint, the situation is all that could be desired. The scenic beauties of the place call into activity the noblest sentiments of the heart and inspire the student with a desire to attain to the noblest and best in life. Here is the Branch of the State Normal School which was established by act of the Legislature passed February 28, 1872. It was created to supply the urgent educational needs of that portion of the State in which it is situated. The act provided that a building be erected and furnished, free of charge, to the State. At this time the village of Concord—now Athens—consisted of but five families. By a deed of March 29, 1874, W. H. Martin and wife conveyed six acres of land to the State of West Virginia. The corner stone of the building had been laid on the 22nd of February, 1874. The money for its erection was raised entirely by subscription. The building was a small wooden structure.

The school was opened May 10, 1875, with Captain James Harvey French as principal, and Honorable William M. Reynolds as assistant, and the first term continued for twenty weeks. There were seventy students enrolled at this session. Speedily thereafter, a splendid new structure was erected by the State, and the school continues to exert an influence that is felt throughout southern West Virginia.

AN OBSERVATION.

The State Normal School, with its five Branches thus enumerated, has wrought a mighty work for West Virginia. All now have splendid buildings with excellent equipment, libraries, and all that is necessary to the best and, therefore, most successful work. The State has spent a million dollars on these Schools. Many hundreds of graduates have gone out from them, and they have enrolled nearly twenty-five thousand students. These trained men and women, learned as they are, not only in the subjects taught, but in the best methods and the science of teaching them, as principals of high and graded schools, teachers in the common schools, as county superintendents, instructors in institutes, lecturers, writers for school journals, editors of newspapers, and leaders in educational progress—they have become a vast power, a mighty agency, for uplifting and making more efficient the whole work of education in West Virginia. Such is the result accomplished by a splendid Normal School System—a system that is not surpassed by any other of its kind in the Union—one in which an army has now been trained, not for war, but to wage the battles of peace, and thus by breaking down the strongholds of ignorance, to win for the State victories that place her people high up in the intellectual scale.

THE WEST VIRGINIA SCHOOLS FOR THE DEAF AND THE BLIND.

Romney, the seat of justice of old Hampshire county, is situated on a little plateau on the eastern bank of the South Branch of the Potomac, sixteen miles from its mouth. It is, with one exception—Shepherdstown—the oldest town in the State, having been laid out in November, 1762, by the sixth Lord Fairfax, on his lands where one hundred lots of half an acre each had been previously surveyed. He named it from Romney, one of the Cinque ports on the English Channel. There, hidden away in the shade of the mountain maple trees transplanted to the grounds, are the West Virginia Schools for the Deaf and the Blind. There was a time when the State had no place for these, her unfortunate children, but even then she strove to care for them. On the 16th of November, 1863, the Legislature, sitting in a rented room in the Linsly Institute, at Wheeling, directed the Governor "to ascertain from the superintendent of the Asylum for the Blind of the State of Ohio, whether blind children can be received and educated in said institute until this State can make suitable provision for the education of this unfortunate class of her citizens at home;" and that he should "report such information as he may be able to obtain to the Legislature at as early a date as possible." There was not much delay, for on the first

SALEM COLLEGE—Salem, Harrison County—(See p. 126.)

day of December ensuing the Legislature provided that "The Governor of the State is hereby directed to contract with some humane asylum, outside the State, for the care, education and support of the blind children whose parents are unable to do it for them." Three thousand dollars was appropriated to help with this. For seven years these children were cared for in Ohio and Virginia, and then, on the 3rd of March, 1870, the Legislature passed an act establishing the West Virginia Schools for the Deaf and the Blind, and in a preamble to it declared: "Whereas, a superior binding obligation to cherish and educate as far as possible, all the deaf and blind youth within its limits, is imposed upon the State by the very laws of nature and the just claims of humanity, therefore the said institution is established." Section 8 of the act required the Board of directors to request its Principal to inform the Principal of the Virginia Institution and the Superintendent of the Ohio Asylum of the earliest possible date at which West Virginia would be ready to receive the deaf and blind children in their care. That is a pretty story—a pathetic one—that of the State bringing her unfortunate children back home. Professor Howard W. Johnson, one of the most remarkable men whom this State has produced—himself totally blind—led in this movement, and may be said to be the father of the institution. June 3, 1870, the trustees of the Romney Classical Institute, transferred to the State all its property including fifteen acres of land, the whole estimated value being about $20,000, for the use of the schools for the Deaf and the Blind, in consideration of their location at Romney. H. H. Hollister, Esq., who came from the Ohio Asylum for the Blind, was elected Principal, and the first pupils—twenty-five deaf and five blind, were admitted in December, 1870. Since then the number of pupils has increased until now there are hundreds. Additional buildings have been erected, many thousands of dollars expended, and now the institution is the pride of the State. Vacation comes; then long lines of the little ones march to the railroad station; are put in coaches, and in care of an attendant, and at State expense, are taken to their homes distributed all over the State. Vacation ends; attendants gather them up again and convey them back to the Schools.

SCHOOLS FOR THE EDUCATION OF THE COLORED RACE.

West Virginia has made ample provision for the education of her colored people. For a number of years, deserving colored men and women were educated by the State as students in Storer College on the site of the United States Armory and the scene of John Brown's insurrection.

In 1867, John Storer, a philanthropist of Sanford, Maine, made an offer of $10,000 to the Free Baptist denomination, provided it would raise an equal amount, for the founding of a school in the South for the benefit of the colored people. President Cheney, of Bates College, Maine, who was deeply interested in the project, came to the Shenandoah Valley to confer with Dr. N. C. Brackett, a young man who had been engaged in the Christian Commission work in the latter years of the Civil War, and was then in charge of the Free Baptist mission work among the colored people. Harper's Ferry, in Jefferson county, was agreed upon as a location and a farm of one hundred and fifty acres, on historic Bolivar Heights, was purchased June 6, 1867. "The Commission for the Promotion of Education in the South," was organized; it was composed of twenty-five members and incorporated by the Legislature of New Hampshire. This body had charge of the early interests of the school, which received the name of Storer College, and which was opened October 2, 1867, with Doctor Brackett as principal, and nineteen students in attendance. Twenty days thereafter, the founder died, leaving $1,000 for a library for the college. The Legislature of West Virginia granted the institution a charter on the second of March, 1868; and on the 3rd of the ensuing December, an act of Congress, passed largely through the influence of Senator Fessenden in the Senate, and James A. Garfield in the House, transferred the Government buildings at Harper's Ferry to the institution, and thus property worth about $30,000 was obtained. To this was added about $16,000 contributed by O. O. Howard, of the Freedman's Bureau. The College buildings command a wide view of the Potomac and Shenandoah rivers, and stand in a region world-renowned for its history. The institution has had and continues to have a very successful career.

THE WEST VIRGINIA COLORED INSTITUTE, AT INSTITUTE.

This institution is located on the north bank of the Great Kanawha river, eight miles below Charleston, the capital of the State. Its establishment resulted from the passage by Congress, August 30, 1890, of an act entitled "An Act to apply a Portion of the Proceeds of the Public Lands to the more complete Endowment and Support of Colleges for the benefit of Agriculture and the Mechanic Arts, established under the Provisions of an Act of Congress approved July 2, 1862." Under its provision, no State could enjoy the benefits of the appropriation unless adequate provision was made for the education of the colored youth of the State. In order to profit by this, the Legislature of West Virginia, in 1891, passed an act es-

tablishing the West Virginia Colored Institute, which is located in the "Cabell Settlement" in Kanawha county. The act carried with it an appropriation of $10,000. The total amount of money conveyed to the State that year under the several acts of Congress was $18,000, of which $15,000 went to the University, and $3,000 to the Colored Institute. This sum was given to it annually for five years, since which time it has received $5,000 yearly. The Governor appointed a Board of Regents; twenty-one acres of land were purchased for $2,250; a building erected at a cost of $9,546; and the school was opened to students May 3, 1892, with James E. Campbell as first principal. Since that time several other buildings have been erected and the property now represents a value of more than $100,000. There is a complete college course, a normal course, and a Department of Mechanical Industries.

THE BLUEFIELD COLORED INSTITUTE.

This institution was established by an act of the Legislature in 1895, entitled "An Act to establish a high-grade School at Bluefield, Mercer County, for the Colored Youth of the State." It was provided in the act that there should be taught in this school such branches of learning as are taught in the University Preparatory Schools, and in the Normal Schools of the State. The sum of eight thousand dollars was appropriated for the purchase of grounds and the erection of a school building. A Board of Regents was appointed on the 20th of August, 1895, and it, in 1896, purchased four acres of land at Bluefield, the metropolis of southern West Virginia, and thereon erected a neat frame building—and the school was opened to students in the autumn of that year, with Hamilton Hatter as its first principal.

The plant now consists of eight and one-half acres of land, on which stand three buildings. It is located on the highland—beautiful hills—just outside the corporate limits of Bluefield, the elevation being nearly twenty-seven hundred feet above sea-level. From the main building—Mahood Hall—may be had a splendid view along the Norfolk & Western railroad —in which is the junction of the Clinch Valley railroad with the first named line. The entire city of Bluefield with its electric light plant, water works, hotels, banks, wholesale houses, depots, churches, and pretty homes, is in sight. Forest-covered mountains are visible on every hand, while the lofty crests of the Stoney Ridge and East River mountains, stand in their majesty against the sky away to the north and the south.

DENOMINATIONAL EDUCATIONAL INSTITUTIONS.

It is an encouraging fact that the several religious denominations within this State are earnestly interested in securing for their youth most liberal educational advantages. Several of these maintain colleges, seminaries and parochial schools, thus furnishing facilities for higher education.

BETHANY COLLEGE.

The little town of Bethany—named from old Bethany in Judea—in Brooke county, will ever be memorable as having been the home of Alexander Campbell the place where he evolved the principles which culminated in the establishment of a new religious denomination which has made a progress in the Christian world that is without a parallel; that now has adherents in every land, who, as desciples, turn their faces toward Bethany. It was here in this secluded and romantic spot where the bright waters of the Buffalo wind their way among the hills that he established the Buffalo Academy for the education of young men, and that the field so widened that he conceived the idea of an institution on a larger, and grander scale; the result was the founding of Bethany College. His idea was that the location of the school should be "entirely rural;—in the country, detached from all external society; not convenient to any town or place of rendezvous—in the midst of forests, fields and gardens,—salubrious air, pure water,—diversified scenery of hills and valleys, limpid brooks and meandering streams of rapid flowing water. Such is the spot I have selected." "In this institution," said he, "it shall not be the theory of a church—of Bible-reading, Bible catechism, Bible-lectures, sermons, church order, Christian discipline; but daily practice of these." A charter was obtained in 1840, and thus was founded the oldest collegiate institution in West Virginia. The founder was the first President of the college; the first term began November 1, 1841, and closed July 4, 1842. The Assembly of Virginia authorized the founding of scholarships, in 1847; incorporated the Neotrophian Society there, March 6, 1849, and gave to the Adelphian Society charter powers, March 29, 1853. In 1851, it had a faculty composed of six members, eighty graduates, and one hundred and forty-one students. At the same date it had 3,500 volumes in its library. For sixty-four years it has been the leading educational institution on the Upper Ohio, and its good work goes on from year to year. The old college building was burned in December, 1857, but another, a part of the present magnificent structure, rose upon its ruins.

MORRIS HARVEY COLLEGE—Barboursville, Cabell County—(See p. 126.)

ASTOR, LENOX AND
TILDEN FOUNDATIONS.

BROADUS CLASSICAL AND SCIENTIFIC INSTITUTE.

Broadus College, now under the auspices of the Baptist Church, had its origin in 1871, at Winchester, Virginia, where it was known as the Winchester Female Institute, with Reverend S. T. Chaplin as the first principal. In its third year it was very prosperous, and its name was then changed to Broadus Female College, in honor of a talented Baptist Minister of Virginia. In 1876, the school was removed to Clarksburg, in Harrison county, West Virginia, its present location, where it was offered many advantages. Here it had a successful career of sixteen years under the management of a private corporation, but in 1893, it became the property of the Baptist Church, and a charter was granted to a board of trustees composed of members named by the local associations of the State, and its name again changed, this time to the "Broadus Classical and Scientific Institute." At that time the property of the school consisted of one acre of land upon which were two buildings—a chapel and a dormitory—the first floor of the latter being used for recitation rooms, the whole worth about $17,000. In 1900, nine acres of land adjoining were purchased, and the next year, Payne Memorial Hall was erected. The property is now worth about $75,000. In the course of study are four departments—Primary, Preparatory, Collegiate and Ornamental. In the Collegiate Department are two courses—the English and the Classical. The school has accomplished much for education in the region in which it is situated, and has a good patronage.

THE WEST VIRGINIA CONFERENCE SEMINARY.

For a number of years the West Virginia Conference of the Methodist Episcopal Church discussed at its annual sessions the subject of establishing an institution of learning, and at its conference in Charleston in 1885, a board of trustees consisting of nine laymen and nine ministers was elected, with instruction to collect funds for that purpose. At the next session it was directed to locate the school and begin the erection of a building. Accordingly, in July ensuing, a tract of forty-three acres of land adjoining the town of Buckhannon, in Upshur county, was purchased and a three-story brick building, eighty by one hundred and six feet, was erected, it being completed in the summer of 1890. The same year Reverend B. W. Hutchinson, A. M., was chosen President, teachers appointed, and the first school opened in September of that year with an enrollment of seventy students, which number, before the close of the year, had increased to two hundred and one. A debt of $20,000 had been contracted in the purchase of

the land and the erection of the building, but this was all liquidated in December, 1893. Then, other improvements were undertaken and in 1895, a Women's Hall completed at a cost of $22,000. In the early years of the institution, only preparatory courses were offered, but in later years these have been so enriched and strengthened that graduates are now admitted into the higher classes of the best colleges and universities. It is the intention to continue this by further additions to the courses and to grant degrees for the work accomplished. The institution now has an endowment of $100,000.

MORRIS HARVEY COLLEGE.

This institution is situated in the quiet little town of Barboursville, on the right bank of the Guyandotte river seven miles from its mouth, and on the line of the Chesapeake & Ohio Railway. The town was established in 1813, and was for half a century the county seat of Cabell county. The school was incorporated May 16, 1888, with Reverend T. S. Wade, D. D., as its first President. During the first year which was the experimental one, the success was beyond the expectations of the most sanguine friends of the institution, there being necessarily much to do in order to put the school into operation. Recently it has received handsome bequests chiefly from Morris Harvey, Esq., of Fayetteville. It has no debt, but instead has money in its treasury, and the property has been greatly improved, the course of study much strengthened and the patronage increased.

SALEM COLLEGE.

This institution had its origin in the Annual Association of the Seventh Day Baptists, whose property it is. It is located at Salem on the Baltimore & Ohio Railroad, fourteen miles west of Clarksburg, in Harrison county. It was opened January 1, 1889, with Reverend S. Maxton as first President, under a charter granted by the State of West Virginia, and in accordance with the requirements of the Seventh Day Baptist Educational Society. Although organized under the auspices of that denomination, and with the proviso that a majority of the trustees must be of that church it is in no wise sectarian. People of all religious faiths joined in aiding in its establishment, assist in its support, and students of all creeds find a hearty welcome within its walls. The college is doing an excellent work for the young people of Central West Virginia. It sends out a goodly number of teachers every year who are winning laurels by their superior work and by the excellent grades of certificates they obtain in the surrounding

counties. The school has no debt, but instead, some money in its treasury.

PRINCETON COLLEGIATE INSTITUTE.

This institution, conducted under the auspices of the Methodist Episopacl Church South, is located at Princeton, the seat of justice of Mercer county. It was established in 1883 as the Princeton Academy, under which name it was known until the past year, when it was changed to that of the Princeton Collegiate Institute. The Institute Building, a pretty buff stone structure, stands in the midst of a grove of beautiful trees a mile and a quarter from the business part of the town. There are two large boarding houses for the accommodation of students—one for young women, and the other for young men. It is not a primary school, nor has it in the past professed to do college work. Its aim has been of a twofold character—to prepare its students to enter the higher institutions of learning, and to give such instruction in the Normal School branches as to fit them to become teachers in the public schools.

ACADEMY OF THE VISITATION AT MOUNT DE CHANTAL.—OTHER CATHOLIC SCHOOLS.

On the 14th of March, 1850, the General Assembly of Virginia passed an act incorporating the "Academy of the Visitation" for the purpose of founding and conducting a seminary of learning in the County of Ohio. Among the incorporators were the Right Reverend Richard V. Whelan, Henry Moore, and Henry M. Jamison. The school had been opened at the corner of Eoff and Fourteenth streets two years before, and here it was continued until 1863, when it had grown to such proportions that it became necessary to find more spacious accommodations. To secure these, a removal was made beyond the smoke and the din of the city to a little plateau, or eminence, now known as Mount de Chantal, in Pleasant Valley two miles east of Wheeling. The present extensive buildings crown this elevation from which may be had a charming view of the valley a hundred feet below, with its graceful, winding stream. The property includes one hundred acres, thirty of which are laid out in pleasure grounds, and ten more in play grounds thickly set with evergreens and ornamental shade trees. This school, now widely known as Mount de Chantal, has become famous as a female school of the highest order and is regarded as the greatest work of Bishop Whelan in the cause of education. It is in charge of the Sisters of the Visitation. The course in literature is a comprehensive one, consisting, as it does, of a critical reading of English authors from the earliest to those

of our own day, with discussions of their merits and faults, a criticism of their style, and, finally, a written estimate of each author given from the standpoint of the pupil. The course in music is excellent, and perhaps unsurpassed in any school in the State.

Other Catholic Schools:—Other Catholic Schools in West Virginia are St. Alphonsus' Parochial School for Boys and Girls at Wheeling, opened in 1856; St. Augustine's School for Boys and Girls, at Grafton, founded in 1857; The Academy of the Visitation, De Sales Heights, at Parkersburg, organized in 1864; St. Joseph's Academy at Wheeling, founded by Bishop Whelan and opened September 1, 1865; St. Joseph's Academy and Day School, at Clarksburg, organized in October, 1872; St. Mary's School in Charleston, opened in 1867; St. Joseph's School at Huntington, opened in 1874; The Cathedral High School at Wheeling, opened in 1896; and St. Michael's School for Boys and Girls, at Whitfield, in 1897.

NEW SCHOOLS—ELKINS COLLEGE—THE OHIO VALLEY COLLEGE.

Honorable Stephen B. Elkins and Honorable Henry G. Davis recently offered the Presbytery of Lexington a donation of $30,000 and a suitable site, if that Presbytery would raise an equal amount and establish a school at Elkins, in Randolph county. This offer has been accepted; Winchester Presbytery has signified its willingness to join in the enterprise, the school to be under the control of both Presbyteries.

The building of the Ohio Valley College at Ravenswood, in Jackson county, is in process of erection and the walls well up. It is the property of the Methodist Protestant Church and at the last session of the Conference it was resolved to complete the work as rapidly as possible.

MISCELLANEOUS PRIVATE SCHOOLS.

In addition to the State and Denominational institutions there are several other schools doing valuable educational work along various lines. These are now to be noticed.

THE LINSLY INSTITUTE.

In Mount Wood Cemetery in Wheeling, stands a plain marble shaft bearing the inscription

"NOAH LINSLY,

A NATIVE OF CONNECTICUT.

THE FOUNDER OF THE LANCASTERIAN ACADEMY.

THE FRIEND OF YOUTH AND THE BENEFACTOR OF MANKIND."

Noah Linsly was born at Branford, Connecticut, February 9, 1772;

[illegible]
AUTHENTICATED
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ACADEMY OF THE VISITATION—MOUNT DE CHANTAL—Wheeling, Ohio County—(See p. 127.)

was fitted for college at East Gifford; educated at Williams Academy—now Williams College—and, in 1794, was a teacher in Yale College. In 1797, he came to Morgantown, now West Virginia, where he spent two years and then removed to Wheeling, the scene of his future labor, and where he died of hemorrhage of the lungs in 1814. In his will he made provision for the maintenance of a school in the town of Wheeling to be conducted on what is known as the "Lancasterian System," to be free to such poor white children as the trustees might deem worthy. This system was originated in 1791 by Doctor Bell, a Scotchman, who had the superintendence of a school in Madras, India, established for the education of the orphans of British soldiers. The method proved so successful that on his subsequent return to England, probably in 1795, he introduced it into that country and it spread rapidly through Europe and to the United States. For a time it was more generally recognized as the "Madras System," having originated there, but the name was soon changed to that of the "Lancasterian System," in honor of an enthusiastic advocate and teacher, whose name was Joseph Lancaster, and who did much to bring it into use in America. The principal peculiarity in the system consisted in making teachers of the more advanced pupils and providing them with classes which they taught. Only the monitors were instructed by the principal. All study was done at will and, for the most part, aloud—a babel—but experience showed that the pupil soon learned to heed none but his own voice. Such a school as this Noah Linsly designed his executors, Samuel Sprigg and Noah Zane, to establish. They obtained a charter October 10, 1814, for the Lancasterian Academy. A lot was purchased between Market and Chaplin Streets and a brick building erected. Then the work began. The Lancasterian System was continued until 1821, when a classical department was established, which became the nucleus from which has grown the Linsly Institute of today, which for more than eighty years has been an important factor in the intellectual life of Wheeling. From 1863 to 1870, a part of the building was used as the State Capitol.

STEPHENSON SEMINARY FOR YOUNG LADIES.

This institution is located in Charles Town, one of the most cultivated and refined communities in the beautiful Shenandoah Valley. It was established in 1882, and was then known as the Mount Parvo Institute, from its location on an eminence of that name west of the town. After two years of successful work, it was deemed desirable to seek a more convenient location with better accommodations. A great aid in this was the bequest made

several years before by John Stephenson, who for many years was a successful merchant of Charles Town, and who, by will, left a lot of four and a half acres pleasantly situated on the east side of town for the purpose of a female seminary. This lay for several years unimproved, but in 1884, a joint stock company was formed to utilize this bequest. The court vested the title in the Board of Directors of the company, and a large brick building was speedily erected at a cost of nine thousand dollars. In honor of the generous donor of the lot and in appreciation of his liberal intentions, the name of the institution was changed from Mount Parvo Institute to Stephenson Seminary for Young Ladies, an institution now known so well and so favorably to the friends and patrons of the highest order of female education.

THE BERKELEY MILITARY ACADEMY.

This school was opened to students in September, 1897, at Martinsburg in Berkeley county, its founder being J. W. Tinsley, a graduate of the University of Virginia. There is complete company organization and all students over twelve years of age wear the regular uniform—a fatigue suit and cap. In addition, there is a complete Academy course of study, embracing the English branches, Mathematics, and Ancient and Modern Languages. It is an accredited school on the lists of a number of higher institutions, among them the West Virginia University.

POWHATAN COLLEGE FOR YOUNG WOMEN.

Powhatan College for Young Women is situated at Charles Town in Jefferson county. It was founded in 1900. Those immediately interested in the institution are among the most prominent men of the Eastern Panhandle. It is thoroughly Christian, but non-sectarian. The main College building is, perhaps, the most modern and commodious one in the State. It is new and was erected and furnished at a cost of about seventy thousand dollars. Every nook and corner is modern, and all appointments are arranged with a view to comfort, beauty and safety. The surroundings are rare as they are beautiful. From almost every window there is presented to the eye of the observer a panorama of pretty scenes. The hills and valleys, the distant rivers and mountains, all contribute to form a picture of beauty and grandeur. The Shenandoah Valley stretches away to the South, and the historic Shenandoah river is seen wending on its northeast course to meet the Potomac at Harper's Ferry. Its Departments of Study and School of Fine Arts are full, embracing as they do, collegiate work through-

out, and degrees, diplomas, and certificates are conferred. Students from several States are in attendance.

BUSINESS COLLEGES AND COMMERCIAL SCHOOLS.

The value of a business education to young men cannot be over-estimated. College education is of great importance, but no course of study can afford a better safeguard, or resource in time of need, than a practical knowledge of business affairs. There are numerous opportunities to obtain this in West Virginia. The creed of all these business schools is to develop the moral worth of young men and women, and with this combine that educational training which will best fit them for the duties and responsibilities of life.

THE OHIO VALLEY COLLEGE OF COMMERCE.

This institution is situated at Ravenswood in Jackson county. It was founded in 1899 by Professor Warren Wood, who has since continued at its head. Its work embraces four distinct courses of study, viz: The Business Course; the Shorthand and Typewriting Course; the Penmanship and Drawing Course; and the Commercial Normal Course.

THE ELLIOTT COMMERCIAL SCHOOLS.

In September, 1893, Professor W. B. Elliott came to Charleston and at that place established the Capitol City Commercial College. The beginnings were small. Two rooms, two tables, two students, and one typewriter. But business increased and in March, 1900, the founder established the Elliott Commercial School at Wheeling; just a year later, another branch—the Elliott School at Fairmont—was opened; and in August, 1902, there was a further extension of the work by the opening of a third branch at Clarksburg. The Courses are uniform throughout the different Schools and those desiring to enter have only to attend the nearest or the one most convenient to reach, and scholarships in one school may be transferred to another. All these schools are prosperous.

THE MOUNTAIN STATE BUSINESS COLLEGE.

The Mountain State Business College was established at Parkersburg in 1889, by Professor Albert Grant Sine. Success crowned the efforts of the founder and he opened another school at Cumberland, Maryland, in 1901. This has likewise been very prosperous. Changes recently made insure still greater growth. The departments of instruction are, the Business Theory,

the Business Practice and Shorthand. There is also provision for instruction in all subjects pertaining to a business education, and in the English branches as well. There is no class system. New students are admitted at any time. Each is taught separately and so progresses according to his or her ability.

THE WHEELING BUSINESS COLLEGE.

We have not space even to mention the numerous business college enterprises of Wheeling in past years, and can only speak of the most successful of these efforts. In June, 1871, W. W. Martin established a school called the National Commercial College, and on May 1, 1876, sold a half interest in it to Professor J. M. Fraser, of New York, and from that date its success was assured. Thenceforth, for thirty-two years, prosperity has attended the institution. Thousands of young people have gone out from its walls to engage in the work of life, and in their careers have honored themselves and the school that fitted them for their work. The name of George W. Fraser has made the school what it is.

WEST VIRGINIA HISTORICAL SOCIETIES.

There has been for years, and continues to be, a desire on the part of the people of the State, to preserve for posterity that which relates to the natural, civil, literary and ecclesiastical history of our country and of our State in particular. For this purpose, thirty-six of the foremost men of our State, by petition, were made a body corporate by act of March 2, 1870. This body was known as the "West Virginia Historical Society" and was to have its place of business at Morgantown. It did active work for several years, then relaxed it efforts. On the first day of February, 1890, "The West Virginia Historical and Antiquarian Society" was incorporated, for the purpose of preserving the history and antiquities of the State. It secured rooms in the Capitol, where its collection is now the pride of the State. Since its organization, the Legislature has appropriated nearly $14,000 to aid in its work. In 1901, the "Trans-Allegheny Historical Society" was organized, at Morgantown, as the successor of the society which had been organized there in 1870, and which had held its last meeting in 1884. Its declared object is to preserve that which relates "to the history, biography, genealogy, literature and antiquities of the Trans-Allegheny Region," and it is prosecuting the work with much energy.

PRINCETON COLLEGIATE INSTITUTE—Princeton, Mercer County—(See p. 127.)

THE NEW YORK PUBLIC LIBRARY
ASTOR, LENOX AND TILDEN FOUNDATIONS.

BIBLIOGRAPHY.

WEST VIRGINIA BOOKS AND AUTHORS.

West Virginia is young—the newest State east of the Mississippi river—but she has a literature, a bibliography, of which her people are justly proud.

This is a land well fitted for the development of a literature, one not surpassed by that of any other American State. Here is that environment so necessary to the inspiration of the grandest themes. It is true that we have no ruined castles, no ancient history, no ghostly inheritances to project themselves through our fancy, but we do have the most interesting pioneer history of any Trans-Allegheny State, fruitful orchards, spreading forests, crystal streams, rolling rivers, smiling valleys, sloping hills, deep canons, towering mountains, and over all an invigorating atmosphere which gives energy, broad views, humane hearts, and a common sense capable of grasping and analyzing the problems of life.

In the long ago when West Virginia was a rugged wilderness inhabited only by wild beasts and savage men, many explorers and adventurers—among them John Lederer, Thomas Batts, John Peter Salley, George Washington, Thomas Walker, Christopher Gist and Francis Asbury—penetrated its deep recesses and wild retreats. They kept journals and diaries of what they saw and of daily occurrences; these have been published and form the basis of our literature just as similar productions do that of every other American State.

Then, too, long years before West Virginia became a State—when it was yet a part of the "Old Dominion"—many literary works of national reputation were produced within our borders. In the year 1774, General Adam Stephen was writing from Martinsburg, in Berkeley county, scathing letters denouncing the action of the British Government. In 1787, James Rumsey, at Shepherdstown, was writing his "Treatise on The Application of Steam to Navigation." In 1799, Colonel John Stuart was at Lewisburg, in Greenbrier county, writing his "Memoirs of the Indian Wars and Other Occurrences;" Nathaniel Willis, father of the distinguished poet, Nathaniel Parker Willis, was editing the "Gazette" at Martinsburg; and Alexander Wilson, the world-renowned ornithologist, who then resided in the same

town, was studying the birds of Western Virginia, along the banks of the upper Potomac.

In 1830, Samuel Kercheval traversed the Valley of the South Branch, and the Eastern Pan-Handle, in quest of information for his "History of the Valley of Virginia;" Alexander S. Withers was wandering over the region drained by the Monongahela, the Elk and the Greenbrier, collecting data for his "Chronicles of Border Warfare;" while Thomas J. Lees, the Principal of the Linsly Institute, at Wheeling, was composing his "Musings of Carol" and his "Snowy Daughter." In 1843, Henry Howe, afoot, or mounted on horseback, was visiting the seats of justice of all the West Virginia counties then existing between the Alleghenies and the Ohio river, that he might prepare a chapter on each for his "Virginia, Its History and Antiquities;" Wills de Hass was in the vicinity of Wheeling compiling his "History of the Early Settlements and Indian Wars of Northwestern Virginia;" William Henry Foote was at Romney, in Hampshire county, preparing his "Sketches of Virginia;" and John Lewis was writing his "Young Kate; or the Rescue—a Tale of the Great Kanawha."

Only forty-one years have passed away since West Virginia, as a State, began her existence; but in that time, her intellectual growth has kept pace with her material development; and her sons and daughters have done her honor in various departments of literature—poetry, history, fiction, theology, law, and science.

The following is a list of the bibliography of the State, including: (1) Books written by West Virginians about West Virginia; (2) Books written by West Virginians on other subjects; (3) Books written about West Virginia by non-resident authors; (4) Early books of non-resident authors printed in West Virginia. All are classified under proper subject headings.

JOURNALS.

"The Discoveries of John Lederer on Three Several Journeys from Virginia, Over the Mountains, March 1669 to September, 1670;" London; 1672. Printed in Latin. A map is preserved showing the travellers' visit to the vicinity of Harper's Ferry.

"Journal of Thomas Batts and Party, 1671;" printed in Fernow's "Ohio Valley in Colonial Days;" Albany, 1890. These were the first white men who traversed West Virginia; they reached the Falls of the Great Kanawha, September 16, 1671, and there took possession of the Valley in the name of their Sovereign, King Charles II.

"Journal of John Peter Salley, 1742;" printed as an appendix to Dar-

lington's edition of "Gist's Journal." Salley lived in Augusta county, Virginia, at the base of the Blue Ridge, and with John Howard and two others crossed the mountains to New River; thence journeyed down that river to Richmond Falls; thence over the mountains to the westward; traversed the Valley of the Great Kanawha; and arrived at its mouth May 6, 1743, whence they descended the Ohio river.

"Journal of My Journey over the Mountains beyond the Blue Ridge, 1747;" George Washington; edited by Joseph M. Toner, Albany, 1892. This work presents the best view of the first settlements of West Virginia that is in existence.

"De Celeron's Journal of His Voyage Down the Ohio, 1749;" printed in the "History of the Pan-Handle," pp. 37-8; Wheeling, 1879. His mission was to bury leaden plates bearing inscriptions asserting the claims of France to the Ohio Valley. Of the six deposited, one was at the mouth of Wheeling Creek, and another at the confluence of the Great Kanawha and the Ohio.

"Doctor Thomas Walker's Journal of an Expedition in the Year 1750;" edited by William Campbell Rives, with a preface; Boston, 1888. He and those with him were the first white men who traversed that part of West Virginia south of New River and were the first who saw the mouth of the Greenbrier.

"Journals of Christopher Gist;" edited by William M. Darlington, Pittsburg, 1893. Gist was the agent and explorer of the Ohio Land Company. He left its store-house on the Potomac—then in Hampshire county, but now the site of the village of Ridgely, in Mineral county—November 4, 1751, to explore the region between the Monongahela and the Great Kanawha rivers. This he did and so full is his journal as to distances and directions that his route may be easily traced through Marshall, Ohio, Tyler, Pleasants, Wood, Wirt, Jackson and Mason counties to the site of Leon on the Great Kanawha river, and of that of his return as well.

"Journal of Captain William Trent from Logstown to Pickawillany, A. D., 1752;" edited by Alfred T. Goodman; Cincinnati, 1871. A view of the Western Country and the Ohio Valley, including a part of West Virginia, a century and a half ago.

"Journal of Captain William Trent from Logstown to Pickawillany, of Virginia Troops, sent by Robert Dinwiddie, Lieutenant-Governor of Virginia, Across the Allegheny Mountains in 1754, to Build Fort at the Head of the Ohio;" edited by Joseph M. Toner; Albany, 1893. This is one of

the most interesting documents relating to the Upper Ohio Valley in which lies part of West Virginia.

"The Journal of Colonel George Crogan down the Ohio and through the West, in 1765;" Philadelphia, 1831. Printed in Butler's "History of Kentucky" as an appendix, in 1834. The author was Deputy Indian Agent for Pennsylvania; his mission was to make peace with the western nations at the close of the French and Indian War. He describes the West Virginia bank of the Ohio.

"Washington's Journal of His Tour to the Ohio in 1770;" printed in the "History of the Pan-Handle," p. 54; Wheeling, 1879. He, with others, came to locate the lands given them for services in the French and Indian War. The mouth of the Great Kanawha was made headquarters and much of their lands located in what is now Mason and Putnam counties.

"Journal of Francis Asbury;" three vols. New York, 1852. Travels over Western Virginia from 1792 to 1810. Has much of interest as to the moral and religious condition of West Virginia a hundred years ago. Every student of West Virginia History should read these volumes.

"Journal of Francois Andre Michaux's Travels to the Westward of the Allegheny Mountains in 1802;" Paris, 1804. Translated by B. Lambert. English edition, London, 1805. Describes West Liberty, Wheeling, appearance of the banks of the Ohio, Point Pleasant and the Great Kanawha.

"Journal of a Tour Into the Territory Northwest of the Allegheny Mountains;" Thadeus Mason Harris; Boston, 1805. Has matter of interest relating to early West Virginia.

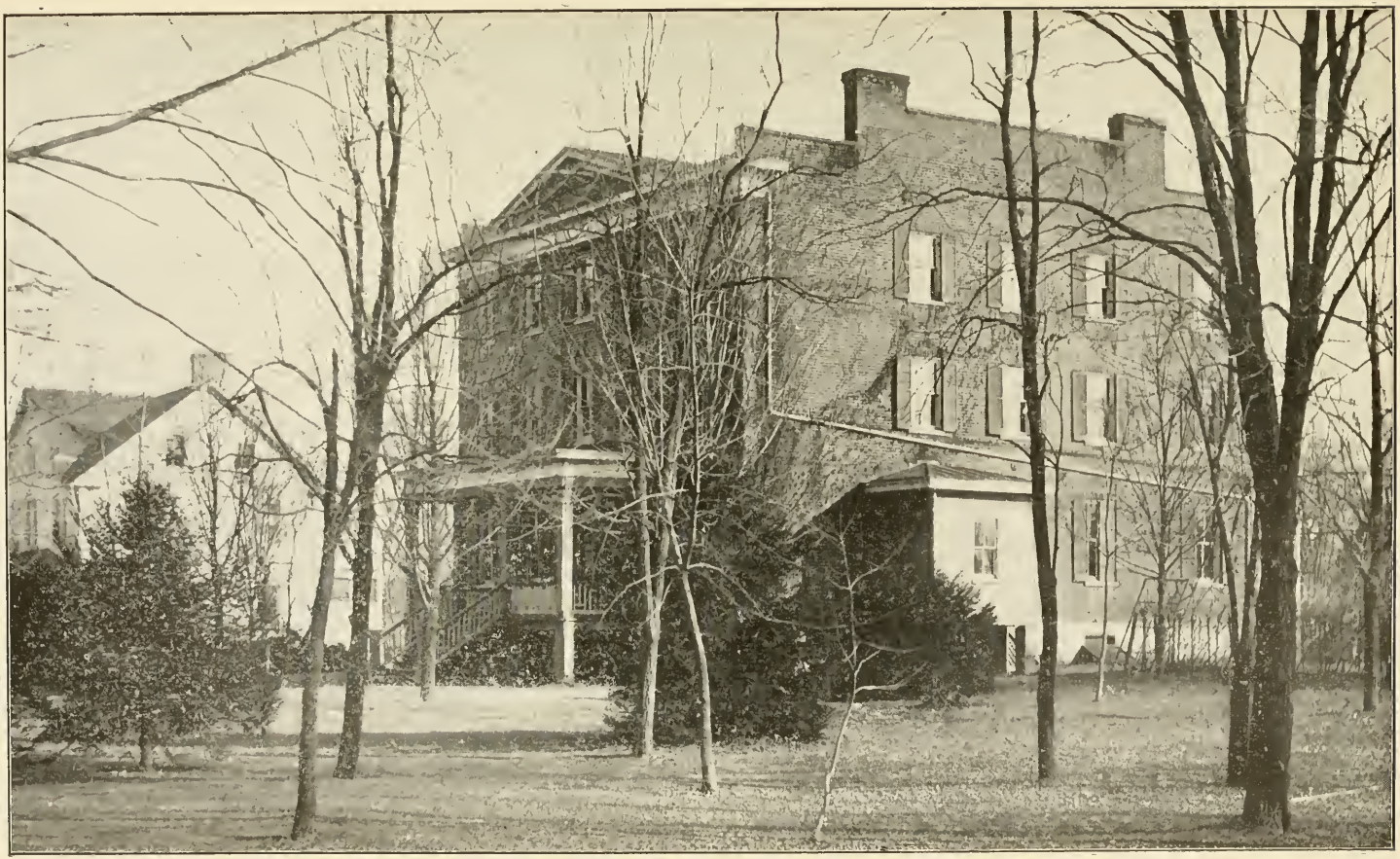
"Journal of the Lewis and Clark Expedition;" Patrick Gass; Pittsburg, 1807. London, 1808. Reprint, Philadelphia, 1810, 1811, and 1812. Gass was a resident of Brooke county and the last survivor of the famous Expedition. There, McKeenan, the Irish schoolmaster, arranged the text for the printer. Gass is buried at Wellsburg.

"Journal of John Cotton, 1815;" edited by John Cotton, Marietta, Ohio. No date. A view of the Ohio Valley in the early part of the last century.

"A Tour of the Western Country in 1818-19;" Benjamin Harding; London, 1819. Interesting description of region west of the Mountains, including part of West Virginia.

HISTORY.

"Notes on the State of Virginia;" Thomas Jefferson; Paris, 1784. American edition, 1800. It contains description of Western Virginia rivers



STEVENSON SEMINARY FOR YOUNG LADIES—Charles Town, Jefferson County—(See p. 129.)

and other physical features with an account of the Indian nations in Virginia and west of the mountains at that time.

"Notes on the Settlement and Indian Wars of the Western Parts of Virginia and Pennsylvania from 1763 to 1783, Inclusive;" Joseph Doddridge, Wheeling, 1824; reprint, Albany, 1876. This is a standard work, one which is quoted extensively by national historical writers. Its title is descriptive of the character of the book; the author resided in Brooke county and is buried at Wellsburg.

"A Narrative of the Incidents Attending the Capture, Detention and Ransom of Charles Johnston, of Boutetourt County, Virginia, Who Was Made Prisoner by the Indians on the Ohio River in 1790;" Charles Johnston; New York, 1827. This was written at Boutetourt Springs; preface dated April 10, 1827. It is a rare book. It recounts a journey in the spring of that year by way of Lewisburg, to Kelley's creek, on the Great Kanawha, and the descent of that river to Point Pleasant.

"Chronicles of Border Warfare; or, a History of the Settlement by the Whites of Northwestern Virginia, and the Indian Wars and Massacres in that Section of the State;" Alexander Scott Withers; Clarksburg, 1831. Reprint, Cincinnati, 1895. This is the best authority extant on the Indian Wars on the frontiers of Virginia. It has been more extensively quoted than any other. The author was noted for his scholarly attainments. He was long a resident of Lewis county, where he was engaged in teaching, but is buried in Wood county.

"Sketches of Western Adventure, Containing an Account of the Most Interesting Incidents Connected with the Settlements of the West from 1755 to 1794;" John A. McClung; Mayesville (Kentucky), 1839. Contains much of Johnston's Narrative and other matters relating to early events in West Virginia.

"Memoirs of Indian Wars and Other Occurrances;" John Stuart, Richmond, 1832. The author was the most renowned pioneer of the Greenbrier Valley; long participated in the Indian Wars, and commanded a company in the battle of Point Pleasant, in 1774. He was for many years Clerk of the Court of Greenbrier county. His "Memoirs," written at his home there, forty years before they were published, are indispensible to the student who would have a knowledge of the State.

"History of the Shenandoah Valley;" Samuel Kercheval, Winchester, 1833. Reprint, Woodstock (Virginia) 1850. The author was a faithful chronicler and his work has been quoted by many leading historians. It

covers the first settlement of Berkeley, Morgan and Jefferson counties, and the Valley of the South Branch of the Potomac.

"The Captives of Abb's Valley;" James Moore, Philadelphia, 1840. Contains an account of the Indian massacre, in 1784, in a pretty little valley on the boundary of the present county of Mercer, in West Virginia, and Tazewell county, Virginia; together with the story of those carried into captivity. There have been many editions of the little volume.

"The Olden Time;" two vols.; Neville B. Craig, Pittsburg, 1846-7. This was a monthly publication published for the preservation of documents and other authentic information relative to the exploration and settlement of the Upper Ohio Valley. This it did for much of northern West Virginia.

"Virginia: Its History and Antiquities;" Henry Howe, Charleston, (South Carolina), 1846. This work in addition to an historical outline, contains a chapter on each county in West Virginia that then had an existence—thirty-two in all.

"History of Virginia;" Robert R. Howisson, Richmond, 1848. Two Vols. Contains much of interest relative to the settlement of West Virginia.

"History of Pittsburg;" Neville B. Craig; Pittsburg, 1848. This is a standard work, containing, in addition to the story of the "Gateway to the West" much valuable material for the History of Northwest Virginia in which Pittsburg was once believed to be.

"Oregon and California in 1849;" Jesse Quinn Thornton; 1849. The author was born in Mason county, near Point Pleasant, August 24, 1800. Among his other published works are "A History of the Provisional Government of Oregon," and a "History of the Willamette Valley." Few other men have been more prominent on the Pacific Coast.

"Sketches of Virginia, Historical and Biographical;" William Henry Foote, D. D., Philadelphia, 1850. The author was pastor of the Presbyterian church at Romney, in Hampshire county, where he wrote much of interest relating to the settlements west of the Blue Ridge.

"History of the Early Settlements and Indian Wars of Northwestern Virginia;" Wills De Hass, Wheeling, 1851. The character of this work is set forth in the title and every one who learns the story of the State must read it.

"History of the Settlement and Indian Wars of Tazewell County;" Doctor George W. L. Bickley, Cincinnati, 1852. Herein is found much of interest relating to that part of West Virginia now in Mercer, McDowell,

Mingo and Logan counties, they having been formed from territory once included in Tazewell county.

"Sketches of Western Methodism;" Thomas A. Morris, D. D., Cincinnati, 1852. The author, a bishop of the Methodist Episcopal Church, was a native of Cabell county, and his work contains much of the early church history of the Guyandotte and Big Sandy valleys.

"Historical Collections of the Great West;" Henry Howe, Cincinnati, 1852. Has an account of the first steamboat—the New Orleans—on the Ohio river, with other matter pertaining to West Virginia.

"Old Churches, Preachers, and Families of Virginia;" William Meade, D. D., Philadelphia, 1857. Two Vols. In these volumes will be found church history, especially of the Eastern Pan-Handle.

"History of the Colony and Ancient Dominion of Virginia;" Charles Campbell, Philadelphia, 1860. This is the best history of the two States before their separation. It has matter relative to military movements in Western Virginia and from here into the Ohio Wilderness.

"The Blennerhassett Papers;" William H. Safford, Cincinnati, 1861. This is the best source extant from which to derive information regarding the Burr-Blennerhassett Conspiracy. From it will be obtained much of interest surrounding the "Deserted Isle," in Wood county of which the author was himself a native.

"A Memoir of the Last Year of the War for Independence in the Confederate States of America, Containing an Account of the Operations of His Command in the Years 1864-1865;" Jubal Early, Lynchburg, 1865. The author, himself a Confederate Commander, witnessed the scenes of which he writes; and some of them were enacted in Berkeley and Jefferson counties.

"First Volume of the Reports of the West Virginia Supreme Court of Appeals;" John Marshall Hagans; Morgantown, 1866. Has an extended account of the formation of the State, especially of the First and Second Wheeling Conventions.

"Recollections of Persons and Places in the West in 1792;" H. M. Breckenridge, Philadelphia, 1868. The West Virginian making research will find much of interest here.

"Ta-gah-ju-te, or Logan the Indian and Captain Michael Cresap;" Brantz Mayer, 1867. The murder of Logan's family in Hancock county, in 1774, is among the tragedies of the Border Wars, and the author has written fully and vigorously of it.

"Historical Account of Boquet's Expedition against the Ohio Indians

on the Muskingum in 1763;" Francis Parkman, Cincinnati, 1868. Boquet's treaty with the Indians on the Muskingum in 1763, secured a cessation of hostilities along the western border of Virginia, and ninety captives who had been carried away by them, therefrom, were restored to him.

"The Annals of Harper's Ferry with Sketches of its Founder;" Joseph Barrey, Martinsburg, 1872. It has full details of John Brown's insurrection at that place, in Jefferson county, many of which are not found elsewhere.

"History of Augusta County, Virginia;" John L. Peyton, Staunton, 1872. This is an indispensible work to any student of West Virginia history, for once Augusta county included two-thirds of the State and stretched away to the Mississippi river. Its history, therefore, forms the basis of much of that of the State.

"An Historical Account of the Expedition Against Sandusky in 1782;" Consul Wiltshire Butterfield, Cincinnati, 1873. This was the ill-fated expedition which was defeated in the Ohio Wilderness and its commander, Colonel William Crawford, taken prisoner and burned at the stake. Many West Virginia pioneers from Northern West Virginia were in this army.

"The Formation of West Virginia;" Granville Parker, Wellsburg, 1875. The author participated in the events which led up to the birth of a new State and his book was the first which treated of it in detail.

"Calendar of Virginia State Papers;" edited by William P. Palmer, Richmond, 1875. Eight volumes, covering the years from 1652 to 1781. They contain an excellent view of West Virginia as it was during the Indian wars and the Revolution. In them are many interesting letters from West Virginia pioneers.

"History, Manners and Customs of the Indian Nations who Inhabited Pennsylvania and the Neighboring States;" Reverend John Heckewelder, Philadelphia, 1876. An account of the savage tribes that wrought wreck and ruin on the hills and in the valleys of Western Virginia. The author was long a Moravian missionary among the Indians in the Ohio Wilderness.

"Virginia Historical Collections;" eleven volumes; edited by Doctor R. A. Brock for the Virginia Historical Society, Richmond, 1876, and forward. These contain a fund of information relating to West Virginia while it was still a part of Virginia.

"The Monongahela of Old;" James Veech; Pittsburg, 1852; Reprint, 1892. Has a full account of Mason and Dixon's Line and has much valuable information regarding the history of northern West Virginia.

"The Washington-Crawford Letters Concerning Western Lands;" arranged by Consul Wiltshire Butterfield; Cincinnati, 1877. Washington be-

LIBRARY

POWHATAN COLLEGE FOR WOMEN—Charles Town, Jefferson County—(See p. 130.)

came the possessor of many thousand acres of land in West Virginia and these were largely located and surveyed by Colonel William Crawford, the same who was afterward burned at the stake by the Indians of the Ohio Wilderness. These letters are largely concerning lands in West Virginia.

"The Praises of the Lord in the Story of Our Fathers; an Historical Discourse;" Reverend D. M. Gilbert; Newmarket (Virginia), 1877. The author, a minister of the Lutheran church, has contributed much of value to the religious history of the Lower Shenandoah Valley. Among his other works are "The Lutheran Church in Virginia;" Newmarket, 1876; and "Muhlenberg's Ministry in Virginia;" Gettysburg, 1884. Both are of much interest.

"History of Cumberland and Braddock's Expedition;" Will J. Loudermilk; Washington, 1878. For five days, in 1755, the King's army under Braddock toiled over the soil of West Virginia, when on its march to the fatal field of Monongahela. This book gives details of the progress of the army and of its disastrous defeat.

"History of the Pan-Handle;" J. H. Newton; Wheeling, 1879. This is a work of much value because of reprints contained therein, among them being "Washington's Journal of his Journey to the Ohio in 1770," and other rare documents all of them pertaining to Western Virginia.

"History of De Celeron's Expedition to the Ohio in 1749;" printed in "History of the Pan-Handle," p. 36, Wheeling, 1879. This expedition was sent by the French authorities from Canada in 1749. France was determined not to yield before the threatening attitude of her powerful rival and De Celeron was sent to bury leaden plates bearing inscriptions asserting her claim to the Ohio Valley.

"History and Progress of the County of Marion;" George A. Dunnington; Fairmont, 1880. The author was aided in the work by notes kept by A. P. Knott. It contains some valuable pioneer history.

"History of Preston County;" Samuel T. Wiley; Kingwood, 1882. This is a work of much merit. The records of the county were destroyed by fire in ——, but the author succeeded in collecting from the people much of their early history which would otherwise have been lost.

"Brooke County; Being a Record of Prominent Events in Brooke County, West Virginia;" John G. Jacob; Wellsburg, 1882. The author, a native of Brooke, wrote of his own county and no other was so competent to do this as he.

"The St. Clair Papers; Life and Public Services of Arthur St. Clair, With His Correspondence and Papers;" edited by William H. Smith; Cin-

cinnati, 1882. Two vols. Has letters from Wheeling and other West Virginia matter regarding the Virginia-Pennsylvania boundary dispute, and about Dunmore's War.

"History of Monongalia County, West Virginia;" Samuel T. Wiley; Kingwood (West Virginia), 1883. This is an elaborate work exhibiting research and investigation and it is, therefore, among the best of the county histories of the State.

"History of the Baltimore and Ohio Railroad;" J. G. Pangborn; Chicago, 1883. Gives details of the construction of the road from Baltimore to Wheeling, and of the years of work on and under the mountains of West Virginia. It was the first road constructed across the Alleghenies.

"The Official Records of Robert Dinwiddie;" edited by Doctor R. A. Brock; Richmond, 1884. Dinwiddie was governor of Virginia during the French and Indian War, and his "Papers" give the best insight into the affairs in Western Virginia at that time, that is now to be obtained.

"Memoirs;" ———— Wells; Winona (Minnesota); 1886. This work treats extensively of Alexander Campbell's efforts in founding the Church of the Disciples, the scene of his labors being at Bethany, in Brooke county.

"The Wilderness Road;" Thomas Speed; Louisville (Kentucky), 1886. This was another historic road over which went many of the first settlers of southwest Virginia.

"Four Years a Soldier;" David E. Johnston; Princeton (West Virginia), 1887. The author was Sergeant-Major of the Seventh Virginia Infantry, Confederate States Army. On its rolls were the names of many West Virginia men, the company to which he belonged being from Mercer county. He has since served as Judge of the Circuit Court and has been a Member of Congress.

"The French in the Allegheny Valley;" T. J. Chapman; Cleveland, 1887. A knowledge of the movements of the French in the Upper Ohio Valley is necessary to a correct understanding of northern West Virginia history.

"Virginia and the Virginians from 1606 to 1888;" joint authorship of R. A. Brock and Virgil A. Lewis; Toledo, Ohio. Has outline history of Virginia, and biographies of all the executives of that State from the settlement of Jamestown.

"Annals of Augusta County, Virginia;" Joseph A. Waddell; Richmond, 1888. Augusta county once included two-thirds of West Virginia, and its annals are largely those of Western Virginia in the early days of its settlement. The author is a painstaking writer.

"History of the First West Virginia Infantry;" C. J. Ralling; Philadelphia, 1887. The story of the formation of this Regiment in the city of Wheeling, carries the reader back to the exciting days of 1861—the stormiest in American history.

"Trans-Allegheny Pioneers;" Doctor John P. Hale; Cincinnati, 1887. The best work of its kind on the subject of the early settlement in the New River Region. Its author was for years president of the West Virginia Historical and Antiquarian Society. He spent all the years of his manhood in Charleston, the capital of the State.

"History of Martinsburg and Berkeley County;" F. Vernon Aler; Hagerstown, 1888. Berkeley county is more than a hundred and thirty years old, and its history is that of the old part of West Virginia.

"History of the National Democratic Party;" William L. Wilson, LL. D.; 1889. The author, a native of Jefferson county, was President of the State University; a member of Congress for ten years; then Postmaster-General, and, lastly, President of Washington and Lee University.

"History of the Upper Ohio Valley;" joint authorship of Gibson Lamb Cranmer, Samuel L. Jepson, J. H. S. Trainer, M. M. Trainer and C. L. Poorman. Here will be found much West Virginia history, for, be it remembered, Hancock county extends north of Pittsburg.

"The History of the Lower Shenandoah Valley;" J. E. Norris; Chicago, 1890. This work covers the Eastern Pan-Handle of the State and is full, complete, and replete with the annals of the old part of the State.

"The Ohio Valley in Colonial Days;" Berthold Fernow; Albany, 1890. This is a corner-stone of West Virginia History, carrying the reader back, as it does, to the days ante-dating the Revolution—to the time when white men first found homes in the hills and valleys of the State.

"History of Washington County, Pennsylvania;" Boyd Crumrine; Philadelphia, 1882. Contains much of value relating to the settlement of the northern part of West Virginia, especially the region of the Upper Monongahela.

"History of the Great Kanawha Valley;" joint authorship of Doctor John P. Hale, Charles E. Hogg, and Virgil A. Lewis; Madison (Wisconsin), 1891. Two vols. The first treats of the early settlement and growth of civilization in the Valley; the second, of the men who have made it what it is.

"The Prelude to Harper's Ferry;" Wendell Phillips Garrison; Andover (Massachusetts), 1891. This is a pamphlet of rare interest; throws much light on the insurrection at that place in 1859.

"The Shenandoah Valley in 1864; Campaign of the Civil War;" George E. Pond; New York, 1892. Contains an account of the marching and countermarching of mighty contending armies over the counties of Berkeley and Jefferson, in West Virginia, with Harper's Ferry and Winchester as important strategic points in these movements.

"Collections and Recollections in the Life and Times of Cardinal Gibbons;" John T. Reily, Martinsburg, 1893. The author, a resident of Berkeley county, has collected much valuable Catholic pioneer history of West Virginia and Maryland and embodied it in this book.

"History of the Second West Virginia Federal Cavalry;" Joseph H. Sutton, Portsmouth, (Ohio) 1892. This is an historical record of a regiment that saw much service in the War for the Union.

"The Assassination of Abraham Lincoln; a History of the Great Conspiracy;" Thomas M. Harris; Boston, 1892. The author was born in Wood county and wrote his work at his home in Ritchie county. He served in the war between the States with the rank of brigadier-general, and was a member of the military commission that tried the conspirators.

"History of the First West Virginia Federal Cavalry; Formerly the Seventh Infantry;" Frank Reader; New Brighton (Pennsylvania). This volume recounts the history of a regiment composed of West Virginians in the National service during the War between the States.

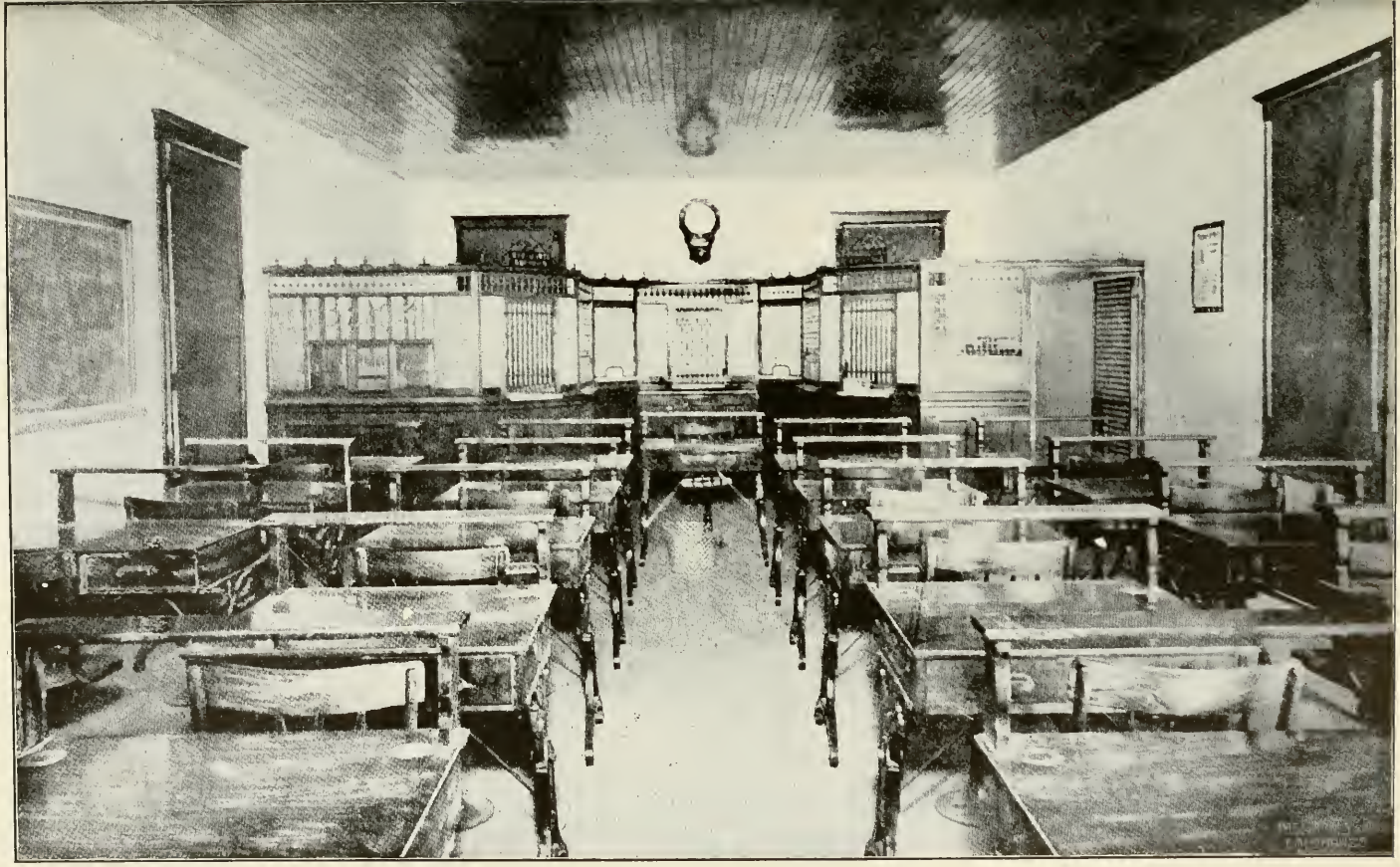
"Mirror of the Olden Time Border Life; Containing Narratives and Sketches of Frontier Men in the Settlement of Virginia and Pennsylvania;" J. Pritts; Chambersburg (Pennsylvania). This is of value to any student of West Virginia history.

"A History of the Rise and Progress of the Baptists in Virginia;" Reverend Robert R. Semple; 1810. Reprint, Richmond, 1894. Has an account of the organization of the early Baptist congregations in West Virginia, together with much biographical matter.

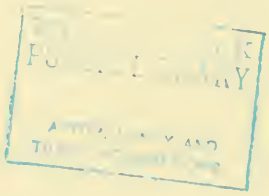
"The Old Pike; a History of the National Road;" Thomas B. Searight; Uniontown, 1894. The most historic highway of America was the great National Road from Cumberland, Maryland, to the West. It passed through part of West Virginia, and Wheeling was its western terminal for years. Over it and through that city passed many of the founders of western commonwealths.

"Heritage of the Trans-Allegheny Pioneers; or, Resources of Central West Virginia;" Thomas Bruce; Baltimore, 1894. There is, in this, some valuable historical information relative to the region drained by the upper waters of the Monongahela, Little Kanawha and Elk rivers.

"The Making of the Ohio Valley States—1660-1837;" Samuel Adams



OHIO VALLEY COLLEGE OF COMMERCE—Interior View—Ravenswood, Jackson County—(See p. 131.)



Drake, New York, 1894. West Virginia is one of these and her history is common with that of the other Ohio Valley States. The author thus treats it.

"Loyal West Virginians from 1861 to 1865; With an Introductory Chapter on the State of Virginia Prior to the War;" Theodore F. Lang; Baltimore, 1895. The author, as implied in the title, traces the development of conditions in West Virginia for thirty years, which led up to the First and Second Wheeling Conventions, the reorganization of the Virginia government and the founding of a new State.

"Nicaraugua; War of the Fillibusters;" Daniel B. Lucas, LL. D.; Richmond, 1896. The author is a liberal contributor to literature and all his productions are of a high order; this is an interesting volume. By birth and residence he is a citizen of Jefferson county.

"A History of the East Ohio Conference of the Methodist Episcopal Church;" T. I. McRa. The author is a native of Monongalia county, in which he grew to manhood and is a member of the Conference of which he writes.

"Afloat on the Ohio;" Reuben Gold Thwaites; Chicago, 1879. Historic locations along the West Virginia banks of the Ohio receive the attention of the author, who writes entertainingly of them.

"The Rear Guard of the Revolution;" James R. Gilmore; New York, 1897. Tells how the frontiersmen fought alike against the Briton from the sea and the savage from the wilderness. Another work by the same author is "The Advance Guard of Civilization;" New York, 1898. Contains details of the march of civilization over and to the westward of the Blue Ridge.

"The Westward Movement; the Colonies and the Republic West of the Alleghenies, 1763-1798;" Justin Windsor; New York, 1897. Early West Virginia settlements have a place here.

"Personal Recollections of Stonewall Jackson;" John G. Gittings, Cincinnati, 1899. The author was a personal friend of the subject with whom he served in the War between the States, and none have been better equipped to write of the great military chieftain than he.

"A Century of Progress; or Historical Souvenir of Wood County, West Virginia;" Centennial edition. Alvaro F. Gibbons; Morgantown, 1899. Has valuable information relating to Wood county for the centennial celebration of which it was prepared.

"Historic Blennerhassett Island Home; An Expedition Against Spain;" Alvaro F. Gibbons, Parkersburg, 1899. An interesting contribution to the

literature of Blennerhassett Island. The author, always an interesting writer, is a citizen of Wood county.

"Records of the Protestant Episcopal Church in Western Virginia and West Virginia;" George W. Peterkin, D. D., L. D., Charleston, 1902. The author is the scholarly Protestant Episcopal Bishop of the Diocese of West Virginia, and the book is the most valuable contribution to the Church history of the State.

"Old Westmoreland; a History of Western Pennsylvania During the Revolution;" Edgar W. Frazier; Pittsburg, 1900. Here is a source from which the student may obtain much West Virginia history—especially that of the northern part of the State.

"The German Imigration Into Pennsylvania Through the Port of Philadelphia, 1700 to 1775." Frank Reid Diefenderfer; Lancaster (Pennsylvania), 1900. The ancestors of many a West Virginia family of German lineage came into the United States through the port of Philadelphia in these years.

"The Writings of Hu Maxwell;" Among these may be mentioned "Idyls of the Golden Shore;" New York, 1899. "Evans and Sontag;" San Francisco, 1895. "Jonathan Fish;" Morgantown, 1902. "History of Tucker County;" Kingwood, 1884. "History of Hampshire County;" Morgantown, 1897. "History of Randolph County;" Morgantown, 1896. "History of Barbour County;" 1899. "History of West Virginia;" Morgantown, 1900.

"Historical Writings of Virgil A. Lewis;" Among these may be mentioned: "A General History of West Virginia;" Philadelphia, 1889. "Life and Times of Anne Bailey, the Pioneer Heroine of the Great Kanawha Valley;" Charleston, 1891. "The Original Indiana Territory;" Charleston, 1895. "The Story of Jamestown;" "History and Government of West Virginia;" Chicago, 1896. A "History of the United States;" "Story of the Louisiana Purchase;" St. Louis, 1903. The last mentioned endorsed by officers of the Louisiana Purchase Exposition Company.

"The Island of Cuba; a Descriptive and Historical Account of the Great Antilla;" Andrew Summers Rowan and Marathon Montrose Ramsey; New York, 1896. Captain Rowan of the United States army was born and reared in Monroe county. It was he who bore the *Message to Garcia.*

"History of Wetzel County;" John C. McEldowney; New Martinsville, 1901. The author is the youngest historical writer of the State.

"An Inside View of the Formation of West Virginia;" William P. Willey, A. M.; Wheeling, 1901. The work reviews at length the various

steps leading up to the formation of the State. The author, a native of Monongalia county, has been long a member of the faculty of the West Virginia University.

"History of Wheeling City and Ohio County;" by Gibson Lamb Cranmer, Chicago, 1902. This is the fullest and best county history of West Virginia. The author, a member of the Wheeling bar, has been a member of the Virginia Assembly; was Secretary of the First Wheeling Convention; was active in the organization of the State, and clerk of the Legislature under the Restored Government.

"History of Braddock's Road;" Archer Butler Hulbert; Cleveland, 1903. This road was opened by Braddock's army in 1755, when marching to the disastrous defeat at the battle of Monongahela. It led twice across the Eastern Pan-Handle of West Virginia.

"History of the Old Glade (Forbes) Road;" Andrew Butler Hulbert; Cleveland, 1903. This was the road over which marched the army of General John Forbes, the advance of which resulted in the destruction of Fort Du Quesne, the breaking of the French power in the Ohio Valley, and the erection of Fort Pitt on the site of Pittsburg.

"History of Southwest Virginia, 1746-1786;" Lewis Preston Summers; Abingdon, (Virginia) 1903. Contains a great amount of matter pertaining to the Battle of Point Pleasant and other early history of West Virginia.

"Captain Beirne Chapman and Chapman's Battery;" Hon. Albert Sidney Johnston, Union, (West Virginia), 1903. This is an historical sketch of a Monroe County Artillery Company in Confederate service in the War between the States. The reader finds much of interest relating to military movements in West Virginia during that struggle.

BIOGRAPHY—AUTOBIOGRAPHY—GENEALOGY.

"An Authentic Biography of La Fayette in Which Many Errors and Deficiencies Existing in Memoirs Heretofore Published Are Corrected and Supplied;" Wheeling, 1825. Author unknown. This volume was published the same year that the distinguished Frenchman and friend of America visited Wheeling.

"Biographical Sketch of the Late Michael Cresap;" John J Jacob; 1826. Contains much of interest relating to Dunmore's War, one of the most important events in West Virginia annals.

"The Life of Harman Blennerhassett;" William E. Safford; Chilicothe, 1850. Has much of interest regarding the Burr-Blennerhassett conspiracy and the historical island in Wood county.

"The Life of Bishop Bascom;" Moses Montgomery Henkle; 1853. Has much of early Methodism in West Virginia. The author was born and reared in Pendleton county.

"The Virginia Convention of 1776;" Sketches of its members by Hugh Blair Grigsby; Richmond, 1855. Has extended biographies of the members of that body from what is now West Virginia.

"Life and Times of Patrick Gass;" John G. Jacob; Wellsburg, 1859. Contains an authentic account of the Lewis and Clark expedition, followed by interesting matter relating to the early settlement of Western Virginia.

"Memoir of John Yates Beale;" Daniel B. Lucas; Montreal, Canada, 1865. The subject was tried and executed on the charge of being a spy; the author, a native of Jefferson county, defended him.

"Life of Lieutenant-General Thomas J. Jackson;" Robert L. Dabney, New York, 1866. Treats of Stonewall Jackson's military campaigns in West Virginia.

"Life and Labors of Rev. Jacob Bachtel;" Zebulon Warner, D. D., Dayton, 1868. Has details of early itinerary ministry in West Virginia and is the first West Virginia biography. The author and his subject were West Virginians.

"Memoir of Rev. William G. Margrave;" Beuhring H. Jones; Lewisburg, 1868. Contains one hundred pages. The subject was a colporteur and worthy Baptist minister who traveled the Greenbrier Valley for thirty-five years.

"Life of Philip Doddridge;" Waitman T. Willey; Morgantown, (West Virginia), 1875. Deals with the early political history of West Virginia. The subject was an early Congressman from northwestern Virginia, and the author one of the first United States Senators from West Virginia.

"Memorial of the Virginia Military Institute;" Charles D. Walker; Philadelphia, 1875. Contains biographical sketches of West Virginians who were graduates of the Virginia Military Institute, and who lost their lives in the War between the States.

"Life of Stonewall Jackson;" John Esten Cook; Richmond, 1876. The author treats of the boyhood and young manhood of his subject—these having been spent in Harrison and Lewis counties, West Virginia.

"Memorial Addresses on the Life and Character of Allen T. Caperton;" printed by order of Congress; Washington, 1877. The subject, a resident of Monroe county, died at Washington while a member of the United States Senate.

"Memoirs of Colonel Joshua P. Frye;" P. Slaughter; New York, 1880.

ELLIOTT COMMERCIAL SCHOOLS. Interior View, Wheeling, Charleston, and Fairmont. See p. 131.

The subject commanded the First Virginia Regiment until his death in 1754, when Washington assumed the command, marched toward Fort Du Quesne—now Pittsburg—defeated the French in the Monongahela Valley, and then surrendered Fort Necessity, the same year. Early West Virginians from the upper Potomac Valley participated.

"Biographies of the Physicians of Wheeling for the Last Hundred Years;" Augustus Eugenius Hildreth, Wheeling, 1882. A work of much value, and entitled to a place in the literature of the State.

"Brief Biographical Accounts of Many Members of the Houston Family;" Samuel Rutherford Houston; Cincinnati, 1882. The most complete genealogy of a family in the State. The old home is in Monroe county.

"In Memoriam: Isaac Noyes Smith Who Died October 6, 1883;" from extracts from the press of Charleston; proceedings of the Bar; funeral sermon, etc.; Cincinnati, 1884.

"Memorial of Charles J. Faulkner;" Martinsburg, 1884. The subject resided in Berkeley county and was the American Minister to Paris in 1861, at the beginning of the War between the States.

"A Memorial of Mary Clemner;" Edward Hudson; Boston, 1886. Has matter relating to Harper's Ferry and the upper Potomac.

"Daniel Boone; Some Facts and Incidents Not Hitherto Published;" John P. Hale; Charleston, 1888. Treats of his residence in the Great Kanawha Valley of which all his biographers seem to have known nothing. Boone represented Kanawha county in the Virginia Assembly in 1791.

"Autobiography of Lorenzo Waugh;" San Francisco, 1888. The author was a native of Pocahontas county; was an early minister in Western Virginia and afterwards crossed the Rocky mountains and gathered the first Methodist congregation in the Valley of the Sacremento river.

"Prominent Men of West Virginia;" George W. Atkinson and Alvaro Gibbons; Wheeling, 1890. Has extended sketches of nearly six hundred West Virginians.

"Life and Adventures of Lewis Wetzel, the Renowned Virginia Scout;" R. C. V. Myers; Philadelphia, 1890. Has the story of the Indian Wars of the Upper Ohio Valley, especially in the vicinity of Wheeling and Grave Creek.

"Autobiography of Doctor Thomas H. Barton; With a History of the Fourth Federal Regiment;"—Virginia Volunteer Infantry; Charleston, 1890. Has an account of General Lightburn's retreat from the Great Kanawha Valley, in 1862, with a wagon train seven miles long hauling government stores worth a million dollars.

"History of the Quarrier Family in America;" by a descendent; Charleston, 1890. This contains a genealogy of a prominent West Virginia family.

"Reminiscences of General Joseph Martin;" Martin Williams; 1891. Contains matter relating to the Indian wars in Western Virginia, and to the New River Valley.

"Life of William Kimbrough Pendleton, LL. D.;" Reverend Frederick D. Power; St. Louis, 1902. The subject was long President of Bethany College, and a State Superintendent of Free Schools of West Virginia. The author was a graduate of that institution and afterwards Professor of Languages therein. This is the best work extant, relating to its founding and the early history of that famous old school.

"Memorial Addresses on the Life and Character of John Edward Kenna;" by order of Congress; Washington, 1893. The subject, a native of Kanawha county, died at Washington while a member of the United States Senate.

"Recollections of Reverend John McElhenny;" Rose W. Frye; Richmond, 1893. The subject founded the Lewisburg Academy in 1808, and was for full fifty years pastor of Presbyterian churches in the Greenbrier Valley, where his name will long be remembered. His biographer is a native of Greenbrier county.

"Contemporary Encyclopedia of Biography of West Virginia;" New York, 1894. The best work of its class relating to West Virginia.

"In Memoriam; a Useful Life;" David A. Cunningham; Wheeling, 1897. The author a pastor of the First Presbyterian Church of Wheeling, and his subject the life of Mrs. Anna C. F. Cunningham, his wife.

"History of the Graham Family;" David Graham; Clayton (West Virginia), 1899. A History of the family of that name in the Great Kanawha Valley.

"Daniel Boone;" Reuben G. Thwaites; New York, 1902. An interesting story of the life of the old Kentucky-West Virginia pioneer, whose home was for ten years in the Great Kanawha Valley.

"Men of West Virginia;" Chicago, 1903. Has biographical sketches of nearly five hundred citizens of the State.

"Edwards Genealogy; Timothy and Rhoda Ogden Edwards, of Stockbridge, Massachusetts and Their Descendents;" Wm. H. Edwards; Cincinnati, 1903. The author is a citizen of Kanawha county.

"Alumni Record of the West Virginia University, 1867-1903;" Edited by Waitman Barbe, A. M., M. S.; Morgantown, 1903. Contains an His-

torical Sketch of Monongahela Academy," by E. M. Turner; also a "History of Woodburn Seminary," by (Mrs.) J. B. Moore. The whole is a valuable compilation.

SCIENCE.

"The Butterflies of North America;" Three vols. William H. Edwards; Boston and New York. Illustrated with color plates and said to be the best work of its kind extant. The author resides at Coalburg in Kanawha county. The work has won praise from Agassiz, Darwin, and many other eminent scientists.

"A Short Treatise on the Application of Steam, Whereby is Clearly Shown from Actual Experiment That Steam May be Applied to Propel Boats or Vessels of Any Burthen Against Rapid Currents;" James Rumsey, the inventor of the steamboat; Philadelphia, 1788. This was written at Shepherdstown, Jefferson county, and was the first literary work of any kind performed in the State. This pamphlet is printed in "Documentary History of New York," Vol. II. p. 1011.

"The Cryptogamous Origin of Malarious and Epidemic Fevers;" John Kearsley Mitchell, M. D.; Philadelphia, 1849. Author was born and reared in Shepherdstown, Jefferson county, and educated in Ayr, Scotland. An eminent physician.

"Works of Richard McSherry, M. D.;" Among these are "El Puchero, or a Mixed Dish from Mexico;" Philadelphia, 1850. "Miscellaneous Essays;" Baltimore, 1859. "Health and How to Promote It;" New York, 1883. The author, a distinguished physician, was born in Martinsburg, Berkeley county; educated at Georgetown College; served in the army and navy; went round the world in the United States frigate Constitution, became professor of Materia Medica and Therapeutics in the University of Maryland, and died in Baltimore in 1850.

"Tableau of Yellow Fever in 1853;" Bennet Dowler, M. D., New Orleans, 1854. The author was born in Moundsville, April 16, 1797, and reared in Marshall county. He won distinction in the treatment of the contagion of which he has written.

"Medicinal Plants of West Virginia;" A. S. Todd, M. D.; 1871. The author was chairman of a Committee of the Medical Society of West Virginia. His enumeration contains the description of the properties of nine trees, seven shrubs, and sixty herbs.

"Meteorology and Epidemic Diseases of Ohio County;" Augustus Eugenius Hildreth, M. D.; Wheeling, 1875. The author was an eminent physician of that city and an authority of recognized ability.

"Medical Botany of West Virginia;" Augustus Eugenius Hildreth; Wheeling, 1875. This is a valuable work for the student of West Virginia Flora, especially of that of the northern part of the State.

"Resources of West Virginia;" M. F. Maury and William M. Fontaine, A. M.; Wheeling, 1876. This book was printed by the State for distribution at the Centennial Celebration at Philadelphia in 1876, and first attracted the attention of the world to the boundless resources of the State.

"Manual of Heavy Artillery Service;" John Caldwell Tidball; Washington, 1880. Author was a native of Ohio county, born there January 25, 1825. Book adopted for use by the War Department.

"Transactions of the American Philological Association;" Edited by Milton Wiley Humphreys, LL. D., who was born in Greenbrier county, September 15, 1844, and there grew to manhood; became a leading educator of the South, an eminent Greek scholar and linguist, and president of the American Philological Society in 1882.

"The Geology of the Virginias; a Reprint from Annual Reports;" William Barton Rodgers, New York, 1884. Contains first scientific report on the West Virginia coal fields. The author, a distinguished geologist, was Director of the Geological Survey of Virginia, from 1834 to 1841.

"Birds of West Virginia;" William D. Doane; Morgantown, 1888. Printed as Bulletin No. 3, of the West Virginia Agricultural Experiment Station. The author visited almost every portion of the State, traversing the mountains and the river valleys, and his work is by far the best treating of the ornithology of West Virginia.

"Description of Upper Pott's Creek Iron Ore Beds;" Henry Gilmer, 1892. The author is an attorney and civil engineer residing at Lewisburg, in Greenbrier county.

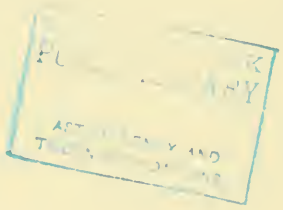
"Coals and Cokes of West Virginia;" William S. Edwards; Cincinnati, 1892. The first work which gave a full description of the Coal and Coking interests of the State.

"Flora of West Virginia;" C. F. Millspaugh; Charleston, 1892. The most complete work treating of the plant life of the State. He was aided in the preparation of this work by Miss Verona Maple, of Gilmer county; Dr. H. McS. Gamble, of Hardy county, and others.

"Geologic Section Along the New and Kanawha Rivers in West Virginia;" The authors were Marius R. Campbell and Walter C. Mendenhall; Washington, 1896. Printed by the Government as a public document.

"Bibliography of Works Upon the Geology and Natural Resources of West Virginia from 1794 to 1901; Also a Cartography of the Same from

WHEELING BUSINESS COLLEGE—Interior View—Wheeling, Ohio County—(See p. 132.)



1737 to 1901;" Samuel B. Brown, A. M.; Morgantown. 1901. Very full and complete. The author is Professor of Geology and Mineralogy in the West Virginia University.

"West Virginia Geological Survey;" Two vols. Vol. 1, Morgantown, 1899; Vol. II, Morgantown, 1903. Vol I deals with petroleum and natural gas; Vol. II, with coal and coke. These are the first volumes of the Geological Survey of which Professor I. C. White, as State Geologist, is the Director.

LAW.

"The Statutes at Large of Virginia from 1619 to 1792;" Thirteen Vols. William Waller Hening; Richmond, 1823. Has much of interest relative to the forming of counties, creation of towns, location of ferries, etc., in Western Virginia in the early days.

"The Statutes at Large of Virginia, 1792-1808;" Three Vols., Samuel Shepherd, Richmond, 1835. A continuation of Hening's "Statutes at Large of Virginia." Valuable because of early legislative annals of Western Virginia.

"Code of 1866;" Made by Daniel Lamb.. By an act of October, 1863. Edward C. Bunker, James C. McGrew and Peter G. Van Winkle, a joint committee of the Legislature contracted with Daniel Lamb to revise, collate, and digest into one code, to be called the "Code of West Virginia" all the statute laws of a general nature now in force in the State.

"Forms for Justices and Constables in Civil Procedure;" Daniel Lamb, Wheeling, 1868. The author was an active member of the convention which framed the first Constitution of West Virginia, being chairman of its legislative committee.

"Organic Law of the State of West Virginia;" John F. Kelly; St. Louis, 1878.

"Ethics of the Bar;" Waitman T. Willey; Morgantown, 1886. The author, a resident of Morgantown, was one of the first United States Senators from West Virginia.

"Land Titles in Virginia and West Virginia;" John A. Hutchinson; Cincinnati, 1887. This work did much in aid of the chancery law practice in these states.

"Corporation Laws of West Virginia;" William M. O. Dawson; Charleston, 1900. Treats of Corporations generally, with regulations applicable to joint stock companies whether incorporated under special charters or general laws.

"A Digest of the Decisions of the Supreme Court of Appeals of West

Virginia, Since the Formation of the State;" James A. Bent; Cincinnati, 1888. Supplement, Cincinnati, 1893. The author is a member of the Bar of Randolph county.

"Corporation Laws of West Virginia;" William E. Chilton; Charleston, 1894. Embraces the statutes of the State relating to the formation and regulation of all classes of corporations and joint stock companies.

"A Treatise on the Laws of West Virginia Pertaining to the Powers and Duties of Justices, Clerks of Courts, Prosecuting Attorneys, Sheriffs, Constables and Notaries;" John A. Hutchinson; Cincinnati, 1889. The author was a distinguished lawyer of Parkersburg.

"Procedure on Common Law Actions; in Equity and in Extraordinary Remedies;" William P. Willey; Chicago, 1894. The author is a Professor of Law in the State University.

"Legal Writings of Charles Edgar Hogg;" Among these are "Pleading and Forms;" Cincinnati: 1895-9. "Equity Principles;" Cincinnati, 1900. "Equity Procedure Embodying the Principles of Pleadings;" Two vols. Cincinnati, 1903. The author, a citizen of Mason county, is among the foremost lawyers of the State, and was a member of the Fiftieth Congress.

"The Complete West Virginia Digest;" H. Clay Hyde, Kingwood. Edited and annotated by Thomas N. Parks of Fairmont. Three Vols. Being a combined Digest and Index to all reported decisions from the organization of the State to Vol. XXXVII of the Supreme Court Reports. A voluminous and valuable work.

TEXT BOOKS—EDUCATIONAL.

"The Alphabet Made Easy;" William Ryland White; Cincinnati, 1865. The author was the first State Superintendent of Free Schools of West Virginia, and this is the first text-book prepared by a West Virginian.

"A Synthetic Grammar of the English Language;" H. Angelo Nash; Charleston, 1876. Designed as a text-book for use in the public schools. The author was a teacher in the West Virginia schools.

"A Graduating System for Country Schools;" Alex. L. Wade; Boston, 1881. This work, immediately on its publication, attracted the attention of educators at home and abroad, and ranks high among educational works.

"A Geography of West Virginia;" A. C. Knote; Wheeling, 1883. The first work of its kind prepared for use in the schools of the State and was much used.

"Our Work at Harper's Ferry;" Kate J. Anthony; Providence, 1883.

The object of the work is to exhibit the progress made in the education of the colored people at Storer College, Harper's Ferry.

"Two Hundred Practical Problems;" John A. Cox; Martinsburg, 1889. The author was superintendent of the public schools at Martinsburg, and his work contains tests in mathematics for high school students.

"Questions and Answers on United States History;" Josiah Hughes; Charleston, 1892. A brief outline intended for topical and review work.

"History of Education in West Virginia;" Benjamin S. Morgan and Jacob F. Cork; Charleston, 1893. An exhaustive treatise showing the progress of education in West Virginia from the Old Field Schools of pioneer days to our present Free Schools System.

"Graded Course of Study for Country and Village Schools;" Virgil A. Lewis; Charleston, 1894. Prepared and published by the State Superintendent of Free Schools as required by law. The teaching force of the State engaged earnestly in its introduction into the schools.

"Geography of West Virginia;" A. E. Kenney; Chicago, 1893. This is a work descriptive of the geography and natural resources of the State. Used in the public schools.

"History and Government of West Virginia;" Virgil A. Lewis; Chicago, 1896. Adopted by the Legislature in 1895 as a text-book for use in the schools of the State.

"Outlines of the Common School Branches;" W. W. Carroll, Hundred, (West Virginia) 1897. Treats of general history, Arithmetic, Grammar, West Virginia History, West Virginia Government and United States History.

"Normal Outlines of General History;" A. L. Rymer, Charleston, 1898. Contains much useful information all arranged in a most convenient form.

"Facts in Civil Government;" Thomas Lansing Davies; Spencer, 1899. A concise presentation of the subject. The book has been adopted as a supplementary text in some of the counties of the State.

"Going to College;" Waitman Barbe, A. M., M. S.; New York, 1899. Designed to show young men and women the advantages of a college education.

"Anatomy and Physiology;" James W. Hartigan; 1899. At the time of writing this work the author was a member of the Faculty of the University of the State.

"History and Government of West Virginia;" Richard E. Fast and Hu Maxwell; Morgantown, 1901. This book has been adopted as a text-book in several of the counties of the State.

"Outline of Civil Government With Special Reference to West Virginia;" A. L. Craig; Summersville (West Virginia), 1901. The author, a native of Nicholas county, was a former teacher and now a member of the Bar, therein. His work is a precise and intelligent presentation of the subject.

"Geography of West Virginia;" Three Supplements; (1) by M. P. Shawkey, for the Grammar School Geography; Chicago, 1897; (2) by Robert A. Armstrong, for Eclectic School Geography; New York, 1898; (3) by U. S. Fleming, for Frye's Complete Geography; Boston, 1900. All of the authors are prominent school men and natives of West Virginia.

"The Educational Needs of Appalachia;" W. J. Holland; 1901. Printed in Trans-Allegheny Historical Magazine in 1902. Designed to show the needs of secondary and higher education in West Virginia and Western Pennsylvania.

"History of Education in West Virginia;" Alexander Reid Whitehill; Washington, 1902. The author, a member of the Faculty of the State University, prepared this work and it has been published by the Federal Government as a public document. It is very full and accurate.

"Practical Grammar and Composition;" Buchanan White, 1904. The author, a resident of Lewis county, is Superintendent of the Weston City Schools, and his work, the result of years of experience, is especially adapted to young teachers who have no definite plans of their own.

"The Elementary Spelling Book;" Noah Webster; Wheeling (Virginia) 1836. It may be matter of surprise to many to learn that the western supply of this, the most famous spelling book the world ever knew, was printed in Wheeling. The following, furnished the writer by Judge Gibson L. Cranmer, of Wheeling, in 1899, is an exact copy of a memorandum and letter of Doctor Noah Webster addressed to J. Fisher & Son, Wheeling, Virginia, (now West Virginia) who were his western publishers. The original of this letter was the property of James Ewing, of Wheeling, now deceased.

New Haven, Conn., Feb. 15, 1836.

Messrs. J. Fisher & Son.

"The elementary Sp. Book has now extensive sale and it is desirable that every material objection to it should be removed. A friend of mine has lately examined it with care and we have agreed to recommend the corrections & alterations which the printer can make with a small chisel or penknife.

Page 32. Cancel the points over "a" in "staves" first word Col. 2.

" 65—Cancel "b" in "gimblet."

" 67—4th line cancel "e" in "whiskey."

THE UNIVERSITY PREPARATORY SCHOOL—Keyser, Mineral County—(See p. 112.)

" 88—4th Col. cancel the second "r" in "ferrule."
" 103—Cancel the second "l" in "ventillate."
" 123—Middle Col. cancel "h" in "cholic."
" 136—Cancel knur, knurl.
" 154—Cancel the accent in "valees."

For making other corrections and alterations the following plates must be sent to a Stereotype founder.—Pages 24, 27, 28, 29, 32, 37, 40, 42, 44, 47, 49, 50, 58, 64, 69, 73, 78, 79, 81, 84, 92, 99, 106, 107, 108, 112, 114, 123, 129, 131, 132, 145, 147, 150, 148.

On the foregoing folio you will see that some corrections are to be made in the plates of my elementary Spelling Book. Please to send the pages specified to Messrs. J. A. James & Co. Stereotype founders, Cincinnati, as soon as the navigation of the river is open. They have my directions for the purpose & this will be at my expense.

I am gentlemen, Your Obt. Servt.

N. WEBSTER."

RELIGIOUS—THEOLOGICAL.

"Christian Panoply; Containing an Apology for the Bible in a Series of Letters Addressed to Thomas Paine;" R. Watson; Shepherdstown, 1797. This was the first book printed in West Virginia. It has been known for a hundred years simply as "Watson's Reply to Tom Paine." Other editions have been made and it has been read over many parts of the world.

"Genius and Faith; or Poetry and Religion in their Mutual Relations;" William Cowper Scott; New York, 1853. Author was born in Martinsburg, Berkeley county, 1817.

"Saurin's Sermons;" Reverend James Saurin; printed in Wheeling, 1822. by Davies & McCarty; first book published in that city. Author was pastor of a French church at The Hague.

"Christ's Certain and Sudden Appearing to Judgment;" Thomas Vincent, Wheeling, 1823. Davies & McCarty were the publishers.

"Writings of Alexander Campbell;" These number fifty-two volumes and include "The Christian System," "Preacher's Companion, or Infidelity Refuted by Infidels," "Living Oracles," "New Testament with Notes and Introduction," "The Christian Hymn-Book," "Christian Baptism; Its Antecedents and Consequents," and "Lectures on the Pentateuch." All his works were written at Bethany, in Brooke county, where he, in 1841, established Bethany College, and became the founder of the Disciples, or Christian Church. He died there in 1866.

"The Living Force;" George W. Thompson, 1866. "The Adminis-

tration of Good and Evil" from the same pen appeared in 1870. The author was long a resident of Ohio county, and was a member of the joint commission, on the part of Virginia, in 1848, to determine the question of title and sovereignty over the Ohio river.

"Christian Theism; Its Claims and Sanctions;" Daniel B. Purinton, Ph. D., LL. D., New York and London, 1889. This book has attracted much attention and has been widely read at home and abroad. The author was born and reared in Preston county; was for twelve years President of Denison University, Ohio, and is now President of the West Virginia University.

"Sacerdotal Silver Jubilee of the Right Reverend John J. Kain;" John T. Sullivan, Wheeling, 1891. The subject was the Catholic Bishop of the Diocese of West Virginia and afterward Arch-Bishop of St. Louis.

"Christian Unity;" Samuel N. Knight, Marietta, 1896. The author was born and reared in Mason county; his work is intended to show the advantages of a union of all Prostestant churches.

"From Life to Life;" Rev. William M. Weekly, D. D., Dayton, 1898. A collation of the dying words of many United Brethren ministers. The author was born and reared in Tyler county. He is the Church Erection Secretary of the United Brethren Church. A later work of his "Getting and Giving, or the Stewardship of Wealth," Dayton, 1903.

"Straley on Baptism;" Harrison Wilson Straley, Roanoke, 1900. The author, a lawyer, was born and reared in Mercer county, where he now resides. He defends the doctrine of Baptism by Immersion.

"The Christian Church;" Rev. George T. Lyle, Charleston, 1903. The author is a minister at St. Albans in Kanawha county. His work treating of Baptism and Christian Unity, is written in a scholarly style.

POETRY.

"The Deserted Isle;" Mrs. Harman Blennerhassett, Montreal, 1823. The author was the wife of Harman Blennerhassett, who once owned Blennerhassett's Island, in Wood county, then the "Paradise of the Ohio." Aaron Burr, the destroyer, came, and it was ruined. Her poem is an eloquent lament over the misfortunes of her family.

"Musings of Carol;" Thomas J. Lees, Wheeling, 1831. Second edition entitled "Poetical Works of Thomas J. Lees;" Wheeling, 1839. This is the earliest anthology of the State and his "Snowy Daughter," in which

Wheeling Island is a prominent place is the most remarkable epic poem of the early literature of the Ohio Valley.

"Froissart Ballads and Other Poems;" William Pendleton Cook, Philadelphia, 1847. His poem, "Florence Vane," has been translated in twenty or more languages. His home was in Martinsburg, in Berkeley county, where he was born and reared. He was educated for the Bar, but devoted his time to literature.

"Poetical Works of Daniel Beddinger Lucas:" Among these may be mentioned "The Land Where We Were Dreaming," 1865; "The Maid of Northumberland; A Drama of the Civil War," New York, 1879; "Ballads and Madrigals," New York, 1884. The author, who is a native of Jefferson county, has long been prominent in the State and is well known as legislator, and, at one time, Judge of the Supreme Court of Appeals.

"The Sunny Land: or Prison Prose and Poetry;" Beuhring H. Jones, Baltimore, 1868. The author, a native of Fayette county, was Colonel of the Sixtieth Regiment, Virginia Confederate Infantry. He wrote much of this book while confined as a prisoner on Johnson's Island in Lake Erie.

"Poetical Works of William Leighton;" Among these are "The Sons of Godwin. A Tragedy," Philadelphia, 1876; "Change: The Whisper of the Sphinx," 1878; "A Sketch of Shakespeare," Wheeling, 1879; and "The Price of the Present Paid by the Past," a poem read at the dedication of the Soldier's monument in Wheeling, in 1883. The author was long interested in the industrial enterprises of that city, and is known in literature as the Poet-Manufacturer of Wheeling."

"Song of a Century;" Waitman Barbe; Parkersburg, 1885. Read by the author at the Morgantown Centennial Celebration in 1885. The author compares the flight of time to the flow of the Monongahela.

"The Mountain Bard;" Charles Russell Christian, Huntington, 1885. Author was a native of Logan county. He said: "My honest endeavor has been to sow the seeds of literature in this hitherto barren country."

"Joy and Other Poems;" (Mrs.) Danske Dandridge, New York, 1888. The author is descended from a Jefferson county family and was born in Copenhagen while her father was minister to Denmark. She resides in Shepherdstown. Another of her published works is "Rosebrake," which has been widely read and has won many compliments for the author.

"Wildwood Chimes;" Emma Withers, Cincinnati, 1891. The author is a grand-daughter of the distinguished author of "Chronicles of Border Warfare." Her home is in Gilmer county.

"Ashes and Incense;" Waitman Barbe, A. M., M. S., Philadelphia,

1892. The author, a native of Monongalia county, has been long connected with the State University. Critical reviewers of both Europe and America declare this production to possess high literary merit. The author needed not the inspiration of battle array to produce "The Crusader's Return." Whatever comes to him, from Nature or Art, is reflected in his writings with a halo of beauty thrown about it by his own fancy.

"The Visions of the Seer; or a Poetic Account of Creation—Life in Eden." Noah Coleman, Charleston, 1894. The author, a native of Kanawha county, was totally blind.

"The Kingdom Gained and Other Poems;" Dudley H. Davis, Richmond, 1896. The author, now deceased, was a resident of Harrison county. A second volume entitled "Songs of the Ages" was published in Baltimore in 1891.

"Select Poems;" Thomas Dunn English, Newark (New Jersey), 1894. The author was for several years a resident of Logan county, and gave to its seat of justice the name of Lawnsville. He afterwards represented a district of New Jersey in Congress. His poems of greatest interest to West Virginians are "Rafting on the Guyandotte," "Gauley River," "The Logan Grazier," "Guyandotte Musings," and the "Boone Wagoner." He was the author of "Ben Bolt."

"A City's Chaplet;" Alice Piersol Cain, Parkersburg, 1899. The author, a native of Wood county, has written much of Blennerhassett's Island and its associations, and of other subjects as well.

"A Summer Idyl;" Janet Houston, Baltimore, 1883. Descriptive of a season at the Salt Sulphur Springs, West Virginia.

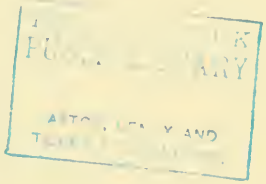
"Wheat and Chaff;" Marshall S. Cornwell, Romney, 1899. The author who was a native of Hampshire county, died at the age of twenty-seven years. He wrote many of his productions while wandering face to face with death on the shorelands of Florida, or along the banks of the Rio Grande. He was the sweet singer of the South Branch Valley.

"Brier Blossoms;" Howard Llewellyn Swisher, Morgantown, 1899. The author is well known because of his literary attainments and business enterprise.

"Twilight Reveries;" Francis Moore Bland, Morgantown, 1900. The author is a daughter of Hon. C. P. T. Moore, of Mason county, an ex-Judge of the Supreme Court of Appeals. Her language is chaste, her productions plaintively sweet; and she needed not the lofty mountain top or the rapidly rolling river, when she penned "Above the Stars there is Rest."

"West Virginia Lyrics;" John G. Gittings, Morgantown, 1902. The

SCHOOLS FOR THE DEAF AND THE BLIND—Romney, Hampshire County—(See p. 120.)



author is a well known educator and writer whose home is in Clarksburg, Harrison county. His "Lyrics"—many of them—are written in memory of the olden time in Western Virginia and are of much interest.

"Lyrics of the Hills;" Edward B. Kenna, Morgantown, 1902. A little volume which is a credit to its author and to the literature of the State.

"Wayside Thoughts;" Patrick Kenney, Richwood, 1903. Printed at Morgantown. Author was long a West Virginia teacher and known over almost all of the State. A volume of selections of prose and poetry, some of which are gems. His book was his last work, for ere it was dry from the press he had gone to that rest of which he sang.

FICTION.

"The Spirit of the Old Dominion;" Stephen T. Mitchell, Richmond, 1827. This is the beginning of the historic novel and much of it deals with the story of what is now West Virginia—especially that relating to the Battle of Point Pleasant.

"A Tale of the White Sulphur Springs, 1813;" by "A. C.," of South Carolina; Richmond, 1839. The best story ever written illustrative of life at that renowned mountain resort. Printed in Southern Literary Messenger, Vol. V., No. II.

"The Knights of the Golden Horseshoe: A Traditionary Tale of the Cocked Hat Gentry of the Old Dominion;" William A. Carruthers, Wetumpka (Alabama), 1845. A novel based upon the narrative of Governor Spottswood's western journey over the Blue Ridge, 1716, at which time his party beheld the West Virginia mountains away to the westward.

"New Hope: or The Rescue;" John Lewis, New York, 1845. Begins "At Kanawha Falls, on a fine morning in October, 1798," etc. It is the best work in the early fiction of the Trans-Allegheny Region. There were two later editions.

"Virginia Illustrated: Containing a Visit to the Virginia Canaan and the Adventures of Porte Crayon and his Cousins;" David H. Strother, *alias* Porte Crayon, New York, 1857. The author was born at Martinsburg, September 26, 1816; served in Federal Army, with the rank of General in the War between the States; died in Jefferson county in 1888.

"Strange Schemes of Randolph Mason;" Melville D. Post, New York, 1896. The author is a member of the Wheeling Bar. This work attracted

much attention. His second book is "The Man of Last Resort," published in New York, 1897; and a third one is entitled "Dwellers in the Hills," New York, 1901.

"In the Virginias;" Waitman Barbe, A. M., M. S., Akron (Ohio), 1896. This is a series of pretty stories told in the author's most pleasing vein.

"Passion Past;" Henrietta E. Slaughter, Charleston, 1888. The author, a native of Mason county, wrote the story under the *nom de plume* of Madam Leighton.

"Hearts of Gold;" a novel. J. McHenry Jones, Wheeling, 1896. This work is a very creditable one. The author is the Principal of the West Virginia Colored Institute, and is among the foremost educators of his race.

"Nonie: A Novel;" Lena Leota Johnston, 1898. This is a charming story. The author is a native of Monroe county and writes under the *nom de plume* of Leota Leigh.

"Daughter of the Elm: A story of the West Virginia Hills;" Granville Davisson Hall, Chicago, 1899. A tale of Western Virginia before the war. Scene laid on West Fork of the Monongahela, where stood a great Elm tree famous for its proportions. The author was formerly editor of the *Wheeling Register.*

"Mark Ellis: or Unsolved Problems;" Will C. Whisner, Morgantown, 1899. Author born at Berkeley Springs, and reared in Morgan county.

"The White Rocks: or The Robbers' Den;" Ashbell Fairchilds Hill, Morgantown, 1900. The scene is laid in the upper part of the Monongahela Valley.

"A Little Court of Yesterday;" Minnie Reid French, New York, 1900. The author is a native of Monroe county, and her story a pleasing description of life in a southern home.

"Nehe: A Tale of the Time of Artaxerxes;" Mrs. Anna Pierpont Siviter, Boston, 1901. Author is a daughter of Francis H. Pierpont, Governor of Virginia under the Restored Government. "Nehe" is the Bible character, Nehemiah, the prophet and soldier, and the story deals with the scenes and events in the Persian Court twenty-four hundred years ago.

"Blennerhassett: or the Decree of Fate;" Charles Felton Pidgin, Boston, 1901. Another historic novel dealing with the story of Blennerhassett's Island.

"Winning or Losing;" Oren F. Morton, Kingwood (West Virginia), 1901. This is a story of the West Virginia Hills. "Under the Cottonwoods," by the same author, Kingwood, 1901, contains a sketch of life on a home-

stead on the plains beyond the Missouri. A third work of this author is "The Land of the Laurel: A Story of the Alleghenies;" Morgantown, 1903.

"The Quaint Family of Three;" Duncan McRa, Charleston, 1902. He tells the story both funny and good, of a West Virginia family of his acquaintance. The author, a native of Monongalia county, is chief clerk in the office of Secretary of State.

"The Works of Mrs. Alex McVeigh Miller." She is the most voluminous writer in the State. Among her published works are the following: "Nina's Peril;" bound with it is "Lady Gay's Pride, or The Miser's Treasure." "Laurel Vane, or The Girl's Conspiracy;" bound with it is "Sworn to Silence; or Aline Rodney's Secret." "An Old Man's Darling;" bound with it is "The Rose and the Lily; or Love Wins Love." "Guy Kenmore's Wife; or Her Mother's Secret;" bound with it is "Queenie's Terrible Secret; or a Young Girl's Strange Fate." "Brunette and Blond;" bound with it is "One Love too Many." "The Bride of the Tomb; or Lancelot Darling's Betrothed;" bound with it is "A Dreadful Temptation." "Bonny Dora; or Winning the Heir;" bound with it is "Little Golden's Daughter; or The Dream of Her Life Time." "Countess Vera;" bound with it is "Jacquelina; or The Outlaw's Bride." The author's home is at Alderson, in Monroe county.

MISCELLANY.

"Travels in America performed in 1806 for the purpose of exploring the Rivers Allegheny, Monongahela, Ohio and Mississippi, and ascertaining the Products and Conditions of their Banks and Vicinity;" Thomas Ashe, London, 1808. Has interesting descriptions of towns and scenery along the West Virginia banks of the Ohio.

"The Navigator;" Pittsburg, 1811. One edition published each year from 1901—eleven in all. It was a complete river guide and contains much of interest relating to the early towns and historic objects in the State along the banks of the Ohio at that time.

"A New and Comprehensive Gazetteer of Virginia;" Joseph Martin, Charlottsville, 1835. Contains description of counties and location of towns, roads, and post offices of Western Virginia, together with much statistical information relating thereto, at the time.

"The Writings of Washington;" Jared Sparks; twelve volumes; Charleston (South Carolina), 1839. Much therein relates to land and military matters in Western Virginia more than a hundred years ago.

"Statistical Gazetteer of the State of Virginia, Embracing Important Topographical and Historical Information;" edited by Richard Edwards,

Richmond, 1855. Herein may be found an interesting view at that time of the region now embraced within West Virginia.

"An Army Officer's Pocket Compendium;" William Price Craighill, 1861. The author is a native of Charles Town, Jefferson county, where he grew to manhood.

"West Virginia Hand-Book and Imigrant's Guide;" J. H. Dis De Bar, Parkersburg, 1870. The author was State Imigration agent at the time he prepared the book and it was published by the State. It does the author much credit. It is an excellent description of the undeveloped condition of the State at that time.

"Women: or Chronicles of the Late War;" Mary Tucker Magill, Philadelphia, 1870. The author has produced a number of books. Among them "A School History of Virginia," and "Pantomimes: or Wordless Poems." She is a native of Jefferson county, West Virginia.

"The Virginia Tourist;" Edward A. Pollard, Philadelphia, 1870. Description of a tour over the Virginias after the War between the States.

"West Virginia—Its Farms, Forests and Oil Wells;" J. R. Dodge, Philadelphia, 1875. This work was prepared soon after West Virginia was admitted into the Union, and the reader is surprised at the information which the author at that time possessed regarding the State.

"The Writings of Ehrman Syme Nadal;" Among these may be mentioned "Impressions of London Social Life," London, 1875; "Essays at Home and Elsewhere," 1882; "Zweibak; or Notes of a Professional Exile," 1887. The author was born and reared in Greenbrier county; graduated from Yale; was secretary of the American Legation in London, and was for several years an editorial writer on the *New York Evening Post.*

"An Atlas of Marion and Monongalia Counties;" J. N. Lathrop and others, Philadelphia, 1886; made from actual surveys, public roads and farms being accurately located.

"Leading Merchants and Manufacturers of the Ohio Valley;" New York, 1887. Treats of biography, industrial enterprise, and commercial interests, as they were at that time.

"The Nicaragua Canal;" William A. MacCorkle, Richmond, 1896. The author, who was governor of the State at the time he wrote this, was deeply interested in the subject and writes in a most vigorous manner.

"An Incestuous Alliance: or the State and the Individual;" A. C. Houston, Cincinnati, 1890. A second book by the same author, "Hugh Harrison (A Mulatto); or A Discussion of the Negro Question," was published at Richmond in 1891.

"The Flying Gray Haired Yank: or The Adventures of a Volunteer;"

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BLOOM OF THE RHODODENDRON—West Virginia State Flower—(See p. 107.)

Michael Egan, Philadelphia, 1888. The author was Captain of Company B, Fifteenth West Virginia Volunteer Federal Infantry, during the War between the States, and he details much of his personal experience, some of which was in West Virginia campaigns.

"Industrial Advance;" I. J. Isaacs, Wheeling, 1889. Exhibits industrial development in the Upper Ohio Valley.

The Miscellaneous Writings of Sarah J. Jones: Miss Jones, a native of Putnam county and long a teacher in the schools of Buffalo, is a voluminous writer. Among her works may be mentioned: "Downward: or the New Distillery;" Philadelphia, 1883; "Struggling Upward;" Philadelphia, 1883; "Godfrey Brentz;" Philadelphia, 1894; "Rest, or Unrest: A story of the Parisian Sabbath in America;" New York, 1888; "None Other Name: or, The Blacksmith of Ninnaberg;" A story of the Reformation; Philadelphia, 1893; "Words and Ways: or What They Said and What Came of It;" Philadelphia, 1892. All are stories, written in a most pleasing style, strongly advocating temperance. They have been widely read.

The Works of F. V. N. Painter: "A History of Education;" New York, 1886; "Luther on Education;" Philadelphia, 1889; "History of Christian Worship;" (Colaboration with J. W. Richard, D. D.) Philadelphia, 1891; "Introduction to English Literature;" Boston, 1894; "Introduction to American Literature;" Boston, 1897; "History of English Literature;" Boston, 1900; "Lyrical Vignettes;" Boston, 1900; "The Reformation Dawn;" Philadelphia, 1901; "Elementary Guide to Literary Criticism;" Boston, 1903; "Poets of the South;" New York, 1903. The author is a native of Hampshire county, where he was born and reared. His writings are widely known.

"The Coal Fields of Monongalia and Preston Counties;" Samuel B. Brown, A. M., Professor of Geology, in the West Virginia University.

"Lectures to Young Men;" John Ray Thompson, ———— ————. The author was formerly President of the State University and lately pastor of a church in Brooklyn, New York.

"Coin's Financial School;" William H. Harvey, Chicago, 1892. Perhaps no book in the political field in this country ever attracted more attention than this. The author was born and reared on a farm in Putnam county, and was afterward a resident of the city of Huntington. Another work, "A Tale of Two Nations," (Chicago, 1894) a novel in which the political issues of the day were interwoven, was also widely read.

"The Mountain State: A Description of the Natural Resources of West Virginia;" George W. Summers, Charleston, 1893. This book was prepared

under the direction of the State Commission of the World's Columbian Exposition at Chicago; it is a most valuable production.

"History and Mystery of the Great Kanawha Valley;" Doctor John P. Hale, Charleston, 1897. Treats fully of an image found in a cavern in Fayette county.

"Essays of Duncan McRa;" Duncan McRa, New York, 1899. The author is a pleasing writer.

"The Negro and the Sunny South;" a Lecture. Samuel Creed Cross; Martinsburg, 1899. The book has attracted much attention and has been widely read; the author is a member of the State Legislature from Morgan county.

"Miscellaneous Works of George W. Atkinson, A. M., LL. D." Among these may be mentioned a "History of Kanawha County;" Charleston, 1876; "After the Moonshiners;" Wheeling, 1881; "Revenue Digest;" Wheeling, 1881; "West Virginia Pulpit;" Wheeling, 1883; "Don't; or Negative Chips;" Wheeling, 1883; "From Blocks of Living Truths;" Wheeling, 1886; "Prominent Men of West Virginia;" Wheeling, 1890; "A B C of the Tariff;" Wheeling, 1892; "Psychology Simplified;" Charleston, 1897; "Public Addresses;" Wheeling, 1901. The author is a native of Kanawha county; has been postmaster of Charleston, collector of internal revenue, member of the Fifty-first Congress, United States district attorney, and was Governor of the State from 1897 to 1901. He is a most pleasing writer and his books are familiar to many readers.

"Charleston and its Resources: or The Capital City Illustrated;" J. C. Tipton, Charleston, 1898. Exhibits growth and condition of the city, at the time it was published.

"The Century Chronicle;" Charleston, 1901. Devoted to the Capital City of the State, its history, and industrial and natural resources.

"From West Virginia to Pompeii;" Rev. Samuel VanDerlit Leach, Morgantown, 1901. The author is the present pastor of the State Street M. E. church, Charleston, West Virginia, and his book is an interesting story of travel.

"The Destiny of the Republic;" Luther D. Mahone, Cincinnati, 1901. The author, a native of West Virginia, endeavors to show the relations of the United States to other nations, in the future.

"The Queen Bee;" T. K. Massie, Charleston, 1900. The author is a resident of Summers county; he has written the only work by a West Virginian on the subject of Bee Culture.

"The Industrial and Commercial Growth of Tunnelton;" W. Scott

Garner, Tunnelton (West Virginia), 1903. This work is both industrial and biographical.

"Letters from Foreign Lands;" Nathan B. Scott, Wheeling, 1903. The author, a prominent business man of Wheeling, now represents West Virginia in the United States Senate. His "Letters" were written while he was traveling in Europe in 1903.

Such is a partial list of the Bibliography of West Virginia, the newest State east of the Mississippi river. All her people are not only interested but proud of it. A bill which was before the last Legislature providing for the collection and classification of it and of all Public Documents, in the State Capitol, passed the Lower House and only failed in the Senate for want of time. The next Legislature will no doubt provide for this.

THE PRESS.

NEWSPAPERS AND PERIODICALS OF THE STATE.

Among the elements which determine the characteristics of a people no branch of social statistics occupies a more important place than that which exhibits the number, variety and diffusion of newspapers and other periodicals. Composing, as they do, a part of the reading of all, they furnish nearly the whole of the reading which the greater number, either from inclination or necessity, permit themselves to enjoy. It has been said that a single newspaper published in the time of Pericles, (had this been possible in that age) would, if handed down to us, be a better index of Athenian life and manners than can now be found in any existing memorial of Grecian civilization. Similarly, the press of today reflects the modern life of the people.

The newspaper and periodical press now so thoroughly covering West Virginia, has won its way to the commanding position it occupies, from very small beginnings. The first newspaper published within the present limits of the State was the *Martinsburg Gazette,* established in 1799, by Nathaniel Willis, father of the distinguished poet, Nathaniel Parker Willis. The second newspaper printed in the State was *The Berkeley and Jefferson County Intelligencer and Northern Neck Advertiser,* which first appeared in the year 1800, John Alburtus being the publisher. The first newspaper printed in Wheeling was the *Repository,* which made its appearance in 1807. Following closely after it were the *Times, Gazette, Telegraph* and *Virginian.* In 1808, the publication of *The Farmer's Repository* began at Charles Town, in Jefferson county. The first newspaper published at Charleston, the capital of the State, was the *Kanawha Patriot,* issued by

Herbert P. Gaines, in 1819. In 1850, there were three dailies and twenty-one weeklies published in the State. Of these, the three dailies and two of the weeklies were published in Ohio county; of the others, two were published in Brooke; one in Greenbrier; one in Hardy; two in Hampshire; three in Jefferson; one in Kanawha; one in Lewis; one in Marshall; one in Monroe; three in Monongalia: one in Marion; one in Preston, and one in Wood.

But today the West Virginia newspaper, now enlarged equally in the area of its diffusion, and the character of its contents, together with the celerity with which it is disseminated, has become a mighty agent of popular intelligence, and the expositor of an enlightened public opinion. It has, indeed, become the popular educator—indispensible in the diffusion of knowledge.

How rapid and wide spread the development of newspapers and other periodicals has been in the State is shown by the following list which now numbers twenty-eight dailies, of which six are morning issues and the remaining twenty-two evening issues; one hundred and seventy-eight weeklies; two semi-weeklies; three fortnightly; eleven monthly; and three quarterly—a total of two hundred and twenty-five press publications in the State.

These are distributed as follows:

Barbour County.

Belington—"Central Republican," weekly; "Courier Journal," weekly.

Philippi—"Barbour Democrat," weekly; "Plaindealer," weekly; "Republican," weekly.

Berkeley County.

Gerrardstown—"Times," fortnightly.

Hedgesville—"Berkeley Enterprise," weekly.

Martinsburg—"Berkeley Democrat," weekly; "Evening World," daily; "Herald," weekly; "Pioneer Press" (Colored), weekly; "Statesman," weekly; "Tomahawk," I. O. R. M., monthly; "World," semi-weekly.

Boone County.

Madison—"Boone Democrat," weekly.

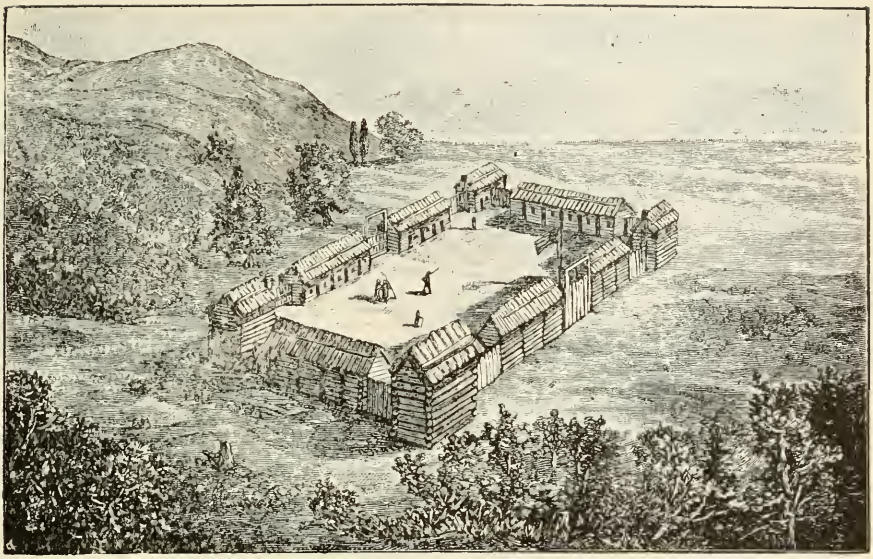
Braxton County.

Sutton—"Braxton Central," weekly; "Braxton Democrat," weekly; "West Virginia Methodist Advocate," weekly.

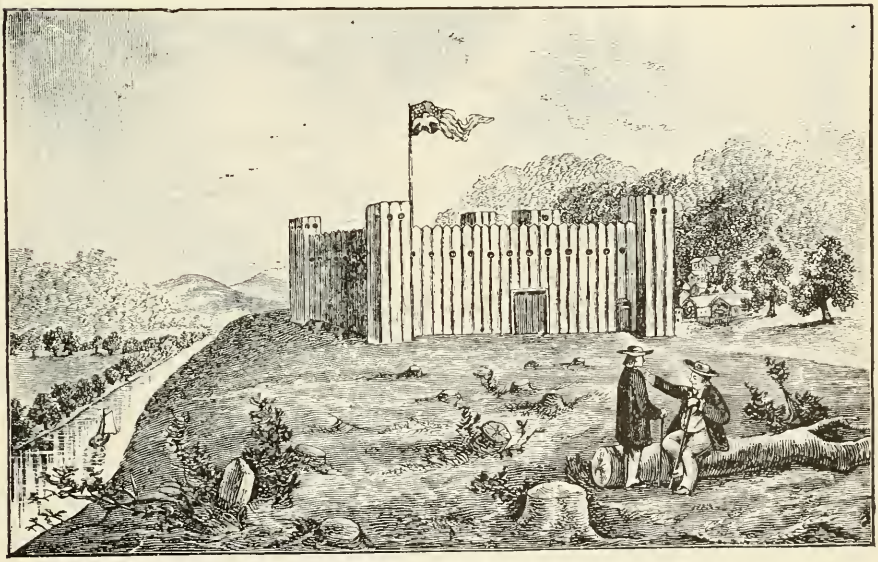
Brooke County.

Bethany—"West Virginia Christian," fortnightly.

Wellsburg—"Herald," weekly and daily; "Pan-Handle News," weekly.



SEYBERTS FORT AS IT WAS IN 1758, at time of Indian massacre that year—Pendleton County—(See p. 34.)



OLD FORT HENRY—Wheeling—1782—(See p. 35.)
Attacked by the British and Indians that year.

Cabell County.

Barboursville—"Guyan Valley News," weekly.

Huntington—"Advertiser," daily and weekly; "Argus," weekly; "Baptist Banner," weekly; "Herald," daily and weekly; "Times," daily.

Calhoun County.

Grantsville—"Calhoun Chronicle," weekly; "News," weekly.

Clay County.

Clay—"Clay County Star," weekly; "West Virginia Hoot Owl," weekly.

Doddridge County.

West Union—"Derrick-Herald," weekly; "Record," weekly.

Fayette County.

Fayetteville—"[illegible]tte Journal," weekly; "Free Press," weekly.

Montgomery—[illegible]Courier," weekly.

Mount Hope—[illegible]Independent," weekly.

Thurmond—"West Virginia Herald," weekly.

Gilmer County.

Glenville—"Pathfinder," weekly; "Stranger," weekly

Grant County.

Gormania—"North Branch Star," weekly.

Petersburg—"Grant County Press," weekly.

Greenbrier County.

Lewisburg—"Greenbrier Independent," weekly.

Ronceverte—"Greenbrier Valley Democrat," weekly; "West Virginia News," weekly.

Hampshire County.

Romney—"Hampshire Review," weekly; "Independent," weekly.

Hancock County.

New Cumberland—"Hancock County Courier," weekly; "Independent," weekly.

Hardy County.

Moorefield—"Examiner," weekly.

Wardensville—"Courier," weekly.

Harrison County.

Clarksburg—"County Mail and Advertiser," weekly; "News," daily and weekly; "Telegram," daily and weekly.

Salem—"Express," weekly; "Leader," weekly.

Shinnston—"News," weekly.

Jackson County.

Ravenswood—"News," weekly.

Ripley—"Jackson Herald," weekly; "Mountaineer," weekly.

Jefferson County.

Charles Town—"Farmer's Advocate," weekly; 'Spirit of Jefferson," weekly; "Virginia Free Press."* weekly; "The Seminarian," quarterly.

Shepherdstown—"Register," weekly.

Kanawha County.

Charleston—"Advocate," (colored) weekly; "Gazette," daily and weekly; "Mail," daily and semi-weekly; "West Virginia Labor Journal," weekly; "West Virginia Farm Reporter," monthly; "West Virginia School Journal," monthly; "Historical Magazine," quarterly.

St. Albans—"Record," weekly; "Reporter," weekly.

Lewis County.

Weston—"Democrat," weekly; "Independent," weekly.

Lincoln County.

Hamlin—"Lincoln Monitor," weekly; "The Lincoln Republican," weekly.

Logan County.

Logan—"Logan County Banner," weekly.

McDowell County.

Iaeger—"Tribune," weekly.

Keystone—"McDowell Herald," daily and weekly.

Welch—"McDowell Recorder," weekly.

Amos—"Independent," weekly.

Marion County.

Fairmont—"Evening Times," daily; "Free Press," weekly; "Index," weekly; "Saturday Leader and Advertiser," weekly; "West Virginian," weekly; "Revelations," monthly.

Mannington—"Advocate," weekly; "Enterprise," weekly; "Record," daily.

Marshall County.

Benwood—"Enterprise," weekly.

Cameron—"Banner," weekly; "Star Tribune," weekly.

Moundsville—"Echo," daily and weekly; "Herald," daily and weekly; "Methodist Episcopal Times," weekly.

Mason County.

Point Pleasant—"Register," weekly; "Evening News," daily; "State Gazette," weekly.

*The "Virginia Free Press", now in the ninety-second year of its publication, is the oldest newspaper in the State.

Mercer County.

Athens—"Mercer Hornet," weekly.

Bluefield—"Inter-State Advertiser," weekly; "Telegraph," daily and weekly.

Princeton—"Journal," weekly.

Mineral County.

Keyser—"Mountain Echo," weekly; "Tribune," weekly.

Ridgely—"West Virginia Workman," A. O. U. W., monthly; "True Pythian," K. of P., monthly.

Piedmont—"Herald," weekly; "Independent," weekly; "Pythian Banner," K. of P., monthly.

Mingo County.

Williamson—"Southern West Virginian," weekly; "Mingo Democrat," weekly.

Monongalia County.

Morgantown—"Athenæum," weekly; "Post," daily and weekly; "New Dominion," daily and weekly; "News," weekly; "Rural News," semi-monthly; "West Virginia Bar," monthly; "Trans-Allegheny Historical Magazine," quarterly.

Monroe County.

Alderson—"Advertiser," weekly.

Union—"Monroe Watchman," weekly; "Union," weekly.

Morgan County.

Berkeley Springs—"Morgan Messenger," weekly; "News," weekly.

Nicholas County.

Richwood—"News," weekly.

Summersville—"Nicholas Chronicle," weekly.

Ohio County.

West Liberty—"Tribune," weekly.

Wheeling—"Deutsche Zeitung," (German), daily; "Freiheit's Banner," (German), weekly; "Intelligencer," daily and weekly; "News," daily and weekly; "Ohio Valley Manufacturer," weekly; "Register," daily and weekly; "Telegraph," daily and weekly.

Pendleton County.

Franklin—"South Branch Review," weekly.

Pleasants County.

St. Mary's—"Oracle," weekly; "Pleasants County Leader," weekly; "West Virginia Methodist Protestant," weekly.

Pocahontas County.

Marlinton—"Messenger," weekly; "Pocahontas Times," weekly.

Preston County.

Kingwood—"Preston County Journal," weekly; "West Virginia Argus," weekly.

Terra Alta—"Preston Republican," weekly.

Putnam County.

Buffalo—"Buffalonian," weekly.

Hurricane—"Breeze," weekly.

Winfield—"Irrepressible," weekly; "Putnam Democrat," weekly; "Putnam Republican," weekly.

Raleigh County.

Beckley—"Raleigh Herald," weekly; "Raleigh Register," weekly.

Randolph County.

Elkins—"Inter-Mountain," weekly; "Randolph Enterprise," weekly; "Tygart's Valley News," weekly; "Mountain State Odd Fellow," I. O. O. F., monthly.

Horton—"New Star," weekly.

Ritchie County.

Cairo—"Gazette," weekly.

Harrisville—"Ritchie Gazette," weekly; "Ritchie Standard," weekly.

Pennsboro—"Gazette," weekly; "News," weekly; "Republican," weekly.

Roane County.

Spencer—"Bulletin," weekly; "Roane County Record," weekly.

Summers County.

Hinton—"Independent Herald," weekly; "Leader," weekly; "Summers Republican," weekly.

Taylor County.

Grafton—"Leader," weekly; "Sentinel," weekly.

Tucker County.

Davis—"News," weekly; "Republican," weekly.

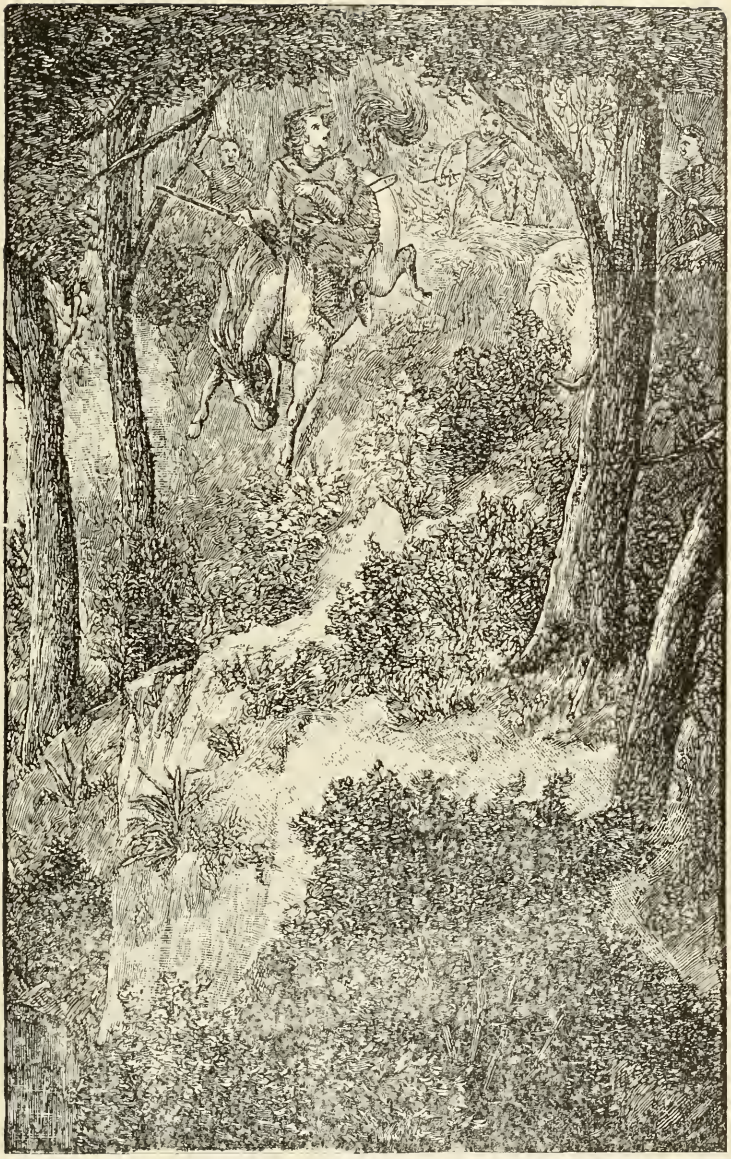
Parsons—"Advocate," weekly; "Mountain State Patriot," weekly; "Tucker County Herald," weekly.

Thomas—"Record," weekly.

Tyler County.

Middlebourne—"Tyler County Star," weekly.

Sistersville—"Oil Review," daily and weekly; "Tyler County Journal," weekly.



McCULLOCH'S LEAP FOR LIFE—Wheeling Hill, Ohio County, 1777—(See p. 35.)

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Upshur County.

Buckhannon—"Banner," weekly; "Delta and Knight Errant," weekly; "Upshur Republican," weekly.

Wayne County.

Ceredo—"Advance," weekly.

Kenova—"Reporter," weekly.

Wayne—"Wayne News," weekly.

Webster County.

Webster Springs—"Independence State," weekly; "Webster Echo," weekly.

Wetzel County.

Hundred—"Industry," weekly.

New Martinsville—"Evening Dispatch," daily and weekly; "News," weekly; "Wetzel Democrat," weekly; "Wetzel Republican," weekly.

Smithfield—"Derrick," weekly.

Wirt County.

Elizabeth—"Kanawha News," weekly; "Times Messenger," weekly.

Wood County.

Parkersburg—"News," daily and weekly; "Sentinel," daily and semi-weekly; "State Journal," daily and weekly; "West Virginia Farmer," monthly.

Wyoming County.

Oceana—"Wyoming Herald," weekly; "Wyoming Tribune," weekly.

In 1900, the last census year, 176 of the 192 newspapers and periodicals reported an aggregate circulation of 226,013, the total number of copies issued being 24,453,873. These publications used 2,916,238 pounds of paper. The amount received by them for advertising was $282,845.00; and for subscription the sum of $293,648.00; the total being $567,493.00.

RELIGIOUS DENOMINATIONS IN WEST VIRGINIA.

The early settlers of Western Virginia,—now West Virginia—notwithstanding their long seclusion in the wilderness from opportunities for religious worship and instruction, did not permit the seed of faith within their breasts to die. Devoted men and women settled the Upper Potomac and Trans-Allegheny Regions. Loyal alike to their God, their Christian profession, and the moral interests of the communities they were establishing, they zealously planned and labored in their humble circumstances to secure the beautiful West Virginia Region to the dominion of their Lord. The records of their pioneer life present to the student

nothing of greater interest than the efforts of the early ministers of the Gospel to keep the teachings of Christianity abreast of the most daring frontiersmen. The first man—Morgan *ap* Morgan—who found a home in West Virginia, in 1727, was himself a church builder of the Established Church. In 1738, the Quakers were having monthly meetings in the valley of the Opequon river; in 1770, Reverend David Jones, of New Jersey, was preaching the Gospel at Wheeling, where white men had resided but a single year. John McNeel erected the little "White Pole Church" on the Little Levels of Pocahontas county before the Revolutionary War, and Reverend John Alderson, in 1777, was expounding the Gospel to little congregations along the banks of Greenbrier river. Thus it was, that almost before the roof was on the rude log cabin, some one of these zealous, self-sacrificing heralds of the cross found his way to it. With Bible in hand and clad in the rough home-spun of the border, they went from one cabin to another proclaiming the glad tidings of "Peace on Earth, Good Will to Men," and by them the first congregations in the then Trans-Allegheny wilderness were organized. No lofty spire or sounding bell guided these worshipers to the place where prayer was wont to be made, for it was within the rough walls of the lowly cabin or beneath the spreading boughs in the dark shades of the forest primeval, for here as in earlier ages, "The groves were God's first temples." Devoted men and women were they, and they carved out a society for themselves and established a code of morals as rigid as any known in older lands. The records of their early courts contain hundreds of entries relative to indictments for Sabbath breaking and profanity. To the Greenbrier Valley and the region stretching away northward to the Upper Potomac, and thence down to the Blue Ridge, came the Scotch-Irish, renowned for their devotion to the principles of Christianity; and here they were met by the ever faithful Huguenot from Carolina, the pious cavalier of Lower Virginia, the strict Catholic from Maryland, the steady Quaker from Pennsylvania, the Baptist and Presbyterian from Delaware and New Jersey, the severely religious Puritan from New England, and the Lutheran and Moravian from the banks of the Upper Rhine. From such an ancestry have descended a large proportion of the inhabitants of the State, the religious history of which begins in the Lower Shenandoah Valley and extends away to the Ohio. Thousands of the early Christian liberal devisers of liberal things, in the good work, fell by the hand of death, but their godly devotion won increasing thousands to take their places, and so, as the workmen fell the work progressed, until now this great undertaking of building up our Christian societies with their annual conferences, associations, yearly meetings, synods, presbyteries, as-

semblies, and conventions; and with their beautiful Christian temples, parochial schools, academies, seminaries and colleges, has been accomplished, and hundreds of thousands of dollars required for their support and endowment have been collected.

Religious work in all communities has been a vital factor to their truest well being. The work done by the devoted godly men and women who labored for these results in Christian work in the primitive years of our Commonwealth, did much to secure for it its present prosperity. A concensus of church work here, reveals not only the religious devotion of our people, but also the general diffusion of religious privileges throughout the State.

All religious denominations of West Virginia stand upon absolute equality before its laws. Neither the Constitution nor the statutes enacted thereunder have ever extended any special favor to creed or denomination, thus assuring freedom to all alike, to worship God according to the dictates of their own consciences. No person of any denomination or sect is ever free from taxation, no matter how much they may have paid to support schools maintained by their own church. Neither do our laws preclude any persons from maintaining schools for the education of their youth, and numbers of institutions thus maintained are doing efficient educational work in the State. The State University, and the State Normal School and its Branches are entirely non-sectarian. No appropriation of any part of the school funds raised by taxation can be legally made for the support of denominational schools.

Now, hundreds of thousands of our people, representing almost every religious denomination known in the United States, unite in making up the sum total of the religious life and Christian civilization of the State, whose entire extent is dotted everywhere with church buildings, the pride of every community.

FRATERNAL, BENEVOLENT, AND PATRIOTIC SOCIETIES.

West Virginia is remarkable because of the associated life of her people, almost all of whom are connected with the fraternal, benevolent and patriotic societies that exist in nearly every town and village in the State. They will continue to increase as long as men continue to seek the fellowship of each other.

ANCIENT, FREE AND ACCEPTED MASONS.

The Grand Lodge of West Virginia was organized at Wheeling in May, 1863, one month before the State was admitted into the Union, but it

was known then that it would speedily become a sovereign Commonwealth. There were at the time thirty-six lodges within its boundaries, which had received their charters from the Grand Lodge of Virginia, but only thirteen of these participated in the formation of the New State Grand Body. The other twenty-three lodges, however, very soon thereafter connected themselves with it. There was no opposition on the part of the Grand Lodge of Virginia, to that of West Virginia and the relations between the two bodies have ever been of the most cordial character. Doctor William J. Bates, of Wheeling, was the first Grand Master; Thomas H. Logan, of the same city, its first Grand Secretary, and both served for seven consecutive years. The latter was succeeded by Odel S. Long, who filled the office for fourteen years and at his death George W. Atkinson, the present incumbent, was elected. There have been thirty-four Grand Masters, four Grand Treasurers, three of whom died in office, and three Grand Secretaries, as stated above. There are now one hundred and twenty lodges in the State with a membership of eight thousand and twenty.

THE INDEPENDENT ORDER OF ODD-FELLOWS.

At the time of the formation of West Virginia there were twenty-seven lodges of the Independent Order of Odd-Fellows within the bounds of the New State, all of which had been instituted under the jurisdiction of the old State of Virginia. Prominent members signed a call for a meeting of delegates to consider the question of organizing a Grand Lodge. Representatives from seven lodges assembled at Fairmont, May 5, 1863. The number of lodges represented being insufficient, a second meeting was held at Wheeling July 21, 1863. At this meeting eleven lodges were represented and a petition praying the Sovereign Grand Lodge to grant a State Grand Lodge charter was signed and forwarded to the proper officers. This prayer was heard with favor and under date of September 23, 1865, that document was issued and under it the Grand Lodge of West Virginia was duly organized at Wheeling, December 5th, ensuing, when twenty-one subordinate lodges were represented. The first annual session of this Grand Lodge was held in the Hall of Virginius Lodge at Wheeling, April 24, 1866. Here twenty-seven lodges—the whole number in the State—were represented and the total membership was found to be one thousand seven hundred and ten. There have been thirty-eight Grand Masters. Thomas G. Steele, the first Grand Secretary, served until 1879, when S. F. Farris was elected, and served one year. Then Thomas G. Steele was re-elected and continued in office until his death in 1883, at which time Ellis A. Billingslea was elected and has served continuously for twenty years. The Order has

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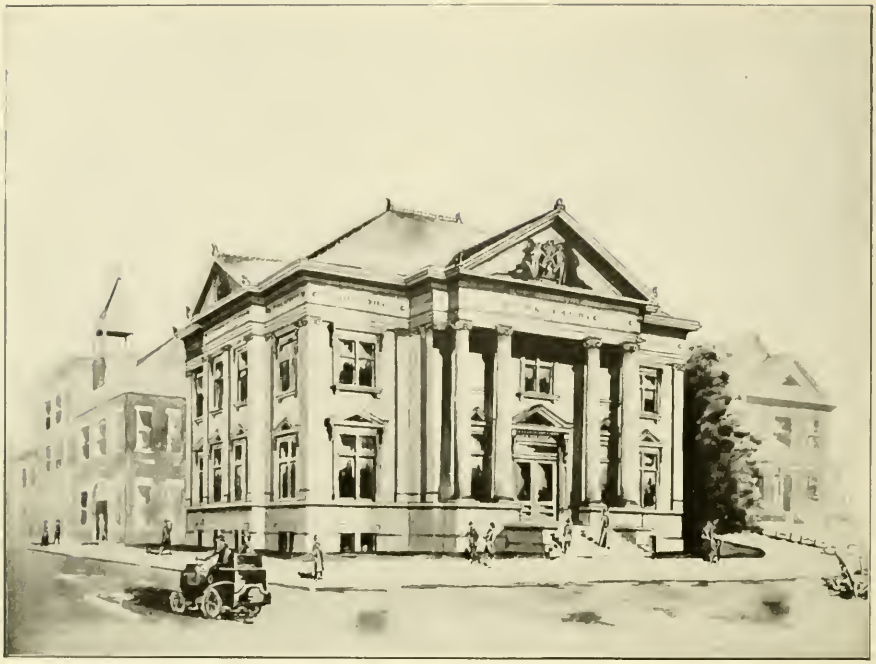


CARNEGIE LIBRARY BUILDING—Huntington, Cabell County—(See p. 182.)

NEW LIBRARY BUILDING—West Virginia University—See p. 181.)

continued to flourish and is today in a most prosperous condition. All its branches—the Subordinate Lodge, the Encampment, the Rebekah Degree, and the Patriarchs Militant Degree, or Canton, are represented in the State. These have collectively four Grand, or State organizations—the Grand Lodge, Grand Encampment, Rebekah Assembly, and Patriarchs Militant Department—with three hundred and twenty lodges or organizations of the several branches, having aggregate memberships numbering seventeen thousand two hundred and ninety-one; and a total value of real and personal property amounting to $213,389.65.

THE KNIGHTS OF PYTHIAS.

Washington Lodge No. 1, the first lodge of Knights of Pythias organized in the State, was instituted at Martinsburg, April 5, 1869, by the Supreme Chancellor, with from fifteen to twenty charter members. Jefferson Lodge No. 2, was instituted at Middleway, in Berkeley county, April 17, 1869, with fifteen charter members. La Fayette Lodge No. 3, began its existence at Piedmont, in Mineral county, May 20, 1869, with fourteen charter members. Morgan Lodge No. 4, was organized at Berkeley Springs, in Morgan county, on the 19th of May, 1869, with fifteen charter members. Damon Lodge No. 5, was instituted at Newburg, in Preston county, May 21, 1869, with about fifteen charter members. Baltimore Lodge No. 6, was organized at Wheeling, June 19, 1869, with about twenty charter members.

The Grand Lodge of West Virginia was organized by the Supreme Chancellor, Samuel Reed, in the Castle Hall of Morgan Lodge No. 4, at Berkeley Springs, July 4, 1869, representatives from the six Lodges then existing in the State being present. From this small beginning the Order has grown to its present proportions, when it has in the State one hundred and forty-two lodges with a membership of eleven thousand, and real and personal property valued at $184,990.83. Connected therewith are lodges of Rathbone Sisters, the Ladies' Degree of the Order.

There have been thirty-six Grand Chancellors, who filled the chairs. J. Rufus Smith was elected Grand Keeper of Records and Seal at the time of the organization of the Grand Lodge and served until October 10, 1889, when he was succeeded by Maner Jenkins, the present incumbent. July 5, 1869, John F. Smith was elected Grand Master of Exchequer. He served until July 11, 1889, when he was succeeded by W. C. Raleigh, who, in turn, was succeeded by Mason H. Smith, who continues to fill the office.

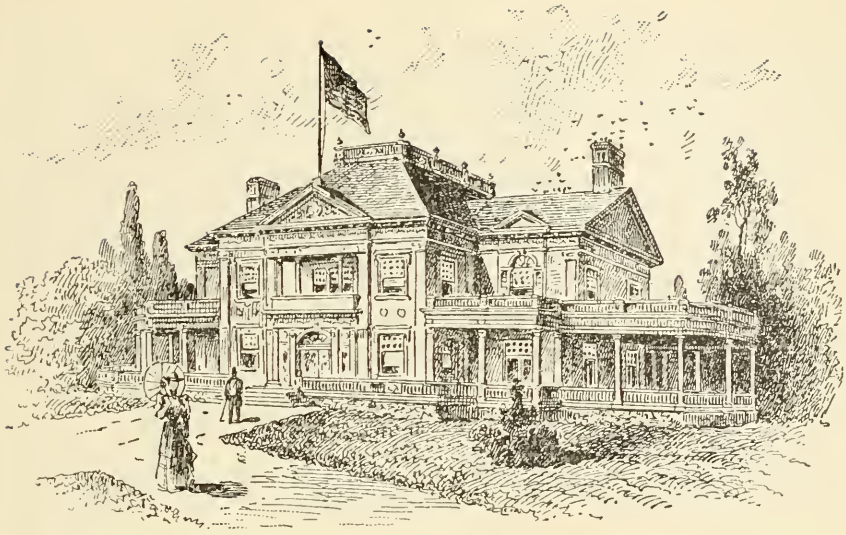
OTHER ORGANIZATIONS.

In addition to the foregoing, other societies have extensive organization in the State. Among these are the Knights of Columbus, Independent Order of Red Men; Knights of the Golden Eagle; Benevolent and Protective Order of Elks; Knights of the Maccabees; Order of United American Mechanics; Junior Order of United American Mechanics; Ancient Order of United Workmen; and United Commercial Travellers. Then, too, there are Grand Army Posts; Women's Relief Corps; Daughters of America; Camps of Confederate Veterans; Daughters of the Confederacy; Sons of the American Revolution; Daughters of the American Revolution; and Colonial Dames. In addition thereto, are organizations of almost every profession and occupation.

WEST VIRGINIANS ABROAD.

Many of the sons and daughters of this "Great Mountain State," who have gone to other States or distant lands in search of fame and fortune have not been disappointed themselves, nor have they disappointed those who expected much of them, for they have won honor on land and sea and thus honored the State that gave them birth.

Numbers of these might be named: Berkeley county gave to Ohio four governors—two native born and two of her sons by adoption—among the best that State ever had. These were Edward Tiffin, Thomas Worthington, Robert Lucas and James Morrow, each one of whose names is commemorated in that of a county in the State which he honored as chief executive. Randolph county gave to Alabama, Reuben Chapman, one among the best governors that State ever had. Monroe county gave to Kansas a distinguished governor, James M. Harvey. The new State of North Dakota is indebted to West Virginia for a most able chief executive—Honorable J. M. Devine. Fayette county gave birth to James T. Farley, who from there went to the Pacific Coast to become a prominent United States Senator from California. Iowa, too, recognizes West Virginia as the State of the nativity of Jonathan Prentiss Doliver, who so ably represents her in the United States Senate. Morgan county was the birthplace of Felix Grundy, the most renowned jurist and constitutional writer that the State of Tennessee ever had. Oliver P. Evans, a Jackson county boy, was a student in the Virginia Military Institute; a Confederate color-bearer at the battle of New Market, and is a judge of the Court of Appeals of California. Cabell county claims as one of her distinguished cizitens, Colonel Theodore T. S. Laidley, the "Artillerist of the Mexican War" and the author of an "Ordnance Manual," and "Instructions in Rifle Practice,"



WEST VIRGINIA STATE BUILDING—World's Columbian Exposition at Chicago, 1893—(See p. 186.)

WEST VIRGINIA STATE BUILDING—Centennial Exposition at Philadelphia, 1876

THE NEW YORK
PUBLIC LIBRARY
ASTOR, LENOX AND
TILDEN FOUNDATIONS.

both of which were largely used in the armies during the War between the States. Harrison county was the birthplace, and Lewis county the scene of the early life of "Stonewall" Jackson. Ohio county gave birth to Major-General Jesse L. Reno, of the Federal Army, who fell while leading the Ninth Army Corps to victory in the desperate battle of South Mountain, Maryland. Another one of her distinguished sons was General John T. Tidball the "Artillerist of the Army of the Potomac," and author of "A Manual of Heavy Artillery Service."

When President McKinley desired to communicate with General Garcia in the mountains of Cuba, Lieutenant Andrew Summers Rowan, a Monroe county, West Virginia, boy, was selected for the hazardous mission and the world knows the story of "Carrying the message to Garcia." Major-General Miles said: "In my judgment, Lieutenant Rowan performed an act of heroism and cool daring that has rarely been equaled in the annals of warfare."

In March, 1899, the most destructive hurricane that ever swept the South Pacific Ocean, passed over the Samoan Islands and in the little harbor of Apia, six war ships and ten other vessels were dashed to pieces on the rocky coast. One hundred and forty-two officers and men of the American and German navies went down to death. Lieutenant R. M. G. Brown, a Preston county, West Virginia boy, was in command of the United States cruiser "Trenton." Rudderless and sailless, she, too, was drifting to her doom upon the rocks, when Lieutenant Brown sent four hundred men into the rigging, thus forming a human sail, and the vessel passed the reef to the open waters. Thus was she saved from destruction and the four hundred and fifty souls on board from death in a surging sea.

It was Captain French Enzer Chadwick, a Monongalia county boy—a native of Morgantown—who so bravely commanded the flag ship "New York" that historic day when the Spanish fleet went down at Santiago, and he and his co-commanders won more than did Nelson at Trafalgar—won more than a "peerage and a grave in Westminster Abbey"—they won a place in the hearts of the great American people.

Professor F. V. N. Painter, a Hampshire county boy, has won distinction in literature. He studied in German Universities and is now Professor of Modern Languages in Roanoke College, Virginia. Another, Father Thomas Mullady, born and reared in the same county, was educated at Rome, was for two years the tutor of the crown prince of Naples, and at the time of his death was President of Georgetown College. Scarcely less distinguished was his brother Samuel, who was long President of

Worcester College, Massachusetts. Milton Wiley Humphreys, a Greenbrier county boy, is today among the most eminent Greek scholars and philologists in the world. To the science of Mathematics, Ohio county gave Dr. Joseph Ray, the author of Ray's Series of Mathematical Text-Books, so well known to the school youth of America, past and present. It was Hampshire county that sent Reverend Andrew Monroe to become the "Father of Methodism beyond the Mississippi;" while his co-laborer, Reverend Lorenza Waugh, born in Pocahontas county, crossed the Rocky mountains to preach the first Protestant sermon in the Valley of the Sacramento river. Cabell county was the place of birth and young manhood of Thomas A. Morris, a distinguished bishop of the Methodist Episcopal church: while Brooke county was the scene of the childhood days of Mary R. McFarland, who, by her own exertions, built the McFarland Mission Home in far-away Alaska. Jefferson county claims as one of her distinguished daughters, Mary Tucker Magill, who is now among the foremost historians of the Old Dominion. So, too, the same county boasts of an honored son, Doctor John K. Mitchell, whose name, like that of Doctor Bennet Dowler, of Marshall county, is known to the medical profession around the world. Among this number, Mason county sent one who was to leave an enduring name in a far distant State. This was Jesse Quinn Thornton, born near Point Pleasant, August 24, 1800. He studied law and was admitted to the bar; practiced in Missouri and Illinois; and went to Oregon in 1846, where he was soon made Chief Justice of Oregon Territory. Shortly after he resigned his office, went to Washington, appeared before a committee of Congress, and succeeded in having the principles of the Wilmot Proviso incorporated into the act which prevented the extension of slavery into the Oregon Country.

Many other distinguished names might be mentioned from these counties and from still others to which no reference has been made, for there is scarcely one in the State that has not had its worthy representatives abroad. It was a West Virginian, an Ohio county boy, who commanded the "Niagara" to which Commodore Perry transferred his flag at the battle of Lake Erie, when his own ship, the "Lawrence," was a drifting wreck. A West Virginian drilled the Venezuelian army and raised it to a high degree of proficiency. Another West Virginian, a Greenbrier boy, in the employ of the Khedive, organized the army of Egypt, mustering and drilling it in the very shadow of the Pyramids.

Thus, West Virginians abroad, as well as at home, possess that ability, energy and enterprise, necessary to entitle them to a place among leading men and women in every department of American life.

BOOKS—LIBRARIES IN THE STATE.

From the coming of the first West Virginia pioneers there was an interest in books—not in the many as now, but in the smaller number which they possessed or could get. These were thoughtfully and thoroughly read with the result that these pioneers were not an ignorant people. Looking back over a period of from fifty to a hundred years from our standpoint of today, we are surprised at what they did in this direction. A traveler who visited Wheeling in 1808, says that "the people were supporting a public library and a book store." On the 15th of December, 1820, the "Library Society of Harper's Ferry" in Jefferson county, was incorporated by an act of the Assembly of Virginia; two meetings were to be held annually, one of which was to be on the first Monday in May, for the election of a president, six directors, a secretary, treasurer, and librarian. On the 5th of February of the same year "The Library Society of Romney," in Hampshire county was incorporated, the annual meeting to be held on the first Saturday in April, ten days notice being given thereof, when a president and four directors were to be chosen, who should from time to time appoint a librarian and such other officers as were necessary. In 1822, Davis & McCarthy were book publishers and sellers in Wheeling, and were then advertising for sale all the standard literary works of the day. On the 31st of December, 1823, "The Lewisburg Circulating Library Company" of Greenbrier county, was made a body politic with perpetual succession, its general meetings to be held on the first Mondays in May and December, four weeks notice thereof being given, when a president, librarian, and other officers were to be chosen. In 1831, Joseph Israel was a book-maker and book-seller in Clarksburg; and at that time, the village and country storekeepers had on their shelves a few standard books for sale as part of their stock in trade. That same year, an act of assembly provided for two State Law Libraries, one of which was to be kept at Lewisburg, in Greenbrier county, for the use of the Supreme Court of Appeals, which was to sit there ninety days in each year to hear all appeals from the inferior courts west of the Blue Ridge except those from the counties of Morgan, Berkeley and Jefferson. Copies of all books in the library at Richmond were to be sent to that at Lewisburg, where the clerk of the court was *ex-officio* librarian. On the 28th of February, 1843, an act of Assembly incorporated "The American Literary Institute," of Bethany College, with perpetual succession, a common seal and the right to hold property to the amount to $8,000. In 1844—January 11th—"The Parkersburg Library Association," at Parkersburg, was granted a charter

with privilege to do any act proper to establish a lyceum, library, and reading room, and to make laws for the government of itself. On the 12th of December, 1846, "The Literary Society of Romney," in Hampshire county, was incorporated; it had power to establish and endow a school at that place and the Potomac Seminary—now the Potomac Academy—owes its existence to this organization. "The Evansville Literary Society," at Evansville, in Preston county, was created by an act of incorporation of March 20, 1847, and this was followed February 4, of the ensuing year by the legal establishment of the "Martinsburg Lyceum" in Berkeley county, with a right to have and to hold property to the value of $10,000, and it was permitted to allow its property to be used for public lectures, musical concerts, scientific and such other exhibitions, as the board of directors might deem expedient for the promotion of art, literature, taste or science. The act was amended January 1, 1852. "The Guyandotte Lyceum," of Guyandotte, Cabell county, was incorporated April 16, 1852. The provisions of another act passed this year, required a library of the value of $100 to be established and maintained at every county-seat for the benefit of the Court and Bar, and the clerks of the circuit courts were made the custodians thereof. Four years later—March 8, 1856—"The Jefferson Athenæum," at Charles Town, in Jefferson county, was made a body corporate, with authority of law to establish a library and reading room, its stock not to exceed $10,000. At this time nearly all of the old Academies had libraries which were their boast. We have seen that in 1851 Rector College, at Pruntytown, has 2,500 volumes on its shelves.

The greatest disaster that ever befell the library interests of the State, was the destruction by fire of the library of Bethany College in December, 1857. It represented the college accumulations of seventeen years, and in connection therewith, the private library of Alexander Campbell, embracing the collections of himself and his father for more than fifty years. It was the greatest loss the literature of the State ever sustained, there being at the time no other library in the upper Ohio Valley outside of Pittsburg, equal to it, and probably this exception should not be made.

LIBRARIES IN THE STATE AT THIS TIME.

But little or nothing was done in extending library work during the years of the Civil War—instead there was loss. The law library of the Court of Appeals, at Lewisburg was scattered, as were the libraries of some of the academies. But speedily after the termination of the struggle,

interest was renewed, and on the 22nd of October, 1866, "The Fairmont Literary Association," of Marion county—the first of its kind incorporated in the new State, was "for the purpose of mutual improvement and the diffusion of knowledge." Thenceforth, the good work of placing books within the reach of the people has gone on, and now, while there are no great libraries in West Virginia, it may be shown that the establishment of small ones has kept pace with the progress of the State. The following statement containing names of institutions with the number of volumes in possession of each at this time, will show how this has been done:

NAME OF INSTITUTION.	NUMBER OF VOLUMES.
The West Virginia University, including Law and the Willey Donation	27,700
The Preparatory Branch of the University at Montgomery	1,500
The Preparatory Branch of the University at Keyser	1,000
The West Virginia Experiment Station	3,900
The West Virginia State Normal School at Huntington	5,500
Branch of the State Normal School at Fairmont	2,800
Branch of the State Normal School at West Liberty (not including public documents)	4,000
Branch of the State Normal School at Shepherdstown	2,500
Branch of West Virginia State Normal School at Glenville (including public documents)	12,600
Branch of the State Normal School at Athens	1,500
The West Virginia Schools for the Deaf and the Blind	2,084
Storer College	6,000
The West Virginia Colored Institute	1,826
The Bluefield Colored Institute	2,000
The State Law Library	14,000
The West Virginia Historical and Antiquarian Society	7,000
Department of Free Schools	2,000
The West Virginia Penitentiary	6,870
The West Virginia Reform School	900
The West Virginia Industrial Home for Girls	185
The West Virginia Hospital for the Insane	900
Academy of the Visitation—Mount de Chantal	5,000
Salem College	3,300
Morris Harvey College	2,000

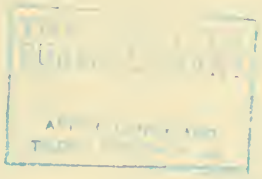
Methodist Conference Seminary	5,000
Princeton Collegiate Institute	400
Broadus Scientific and Classical Institute	1,500
Bethany College	6,000
Powhatan College	1,500
Stephenson Female Seminary	1,000
Wheeling Public Library and Public Schools	20,500
Huntington Public Library	3,500
Martinsburg Public Library	2,224
Parkersburg Public Library	2,689
Public Schools of Parkersburg	5,520
Public Schools of Weston	1,500
Charleston High School	1,000
Public Schools of Huntington	3,800
Public Schools of Wellsburg	800
Public Schools of New Martinsville	925
Public Schools of Martinsburg	1,000
Public Schools of Fairmont	2,065
Public Schools of Sistersville	1,000
Public Schools of Moundsville	225
Public Schools of Mannington	1,020
Public Schools of Clarksburg	2,149
Public Schools of Grafton	1,475
Public Schools of Charles Town	285
Public primary schools reporting (1,082 schools)	37,505
Total	221,647

Here we have nearly a quarter of a million of volumes, not massed in a great city library, but widely distributed over the whole State, available to the people of every section.

In addition to these there are many private, professional and miscellaneous libraries, and there is not a county-seat or town of importance in the State in which one or more of these may not be found.

WEST VIRGINIA AT WORLD'S FAIRS.

West Virginia has participated in World's Fairs and no other State has profited more from them than she; for by them more than in any other way, has the world come to know of her elements of wealth.



WEST VIRGINIA STATE BUILDING—Louisiana Purchase Exposition, St. Louis, 1904—(See p. 187.)

WEST VIRGINIA AT THE UNITED STATES CENTENNIAL EXPOSITION AT PHILADELPHIA, IN 1876.

The first effort which the State made to exhibit her resources at a World's Fair was at the United States Centennial Exposition at Philadelphia in 1876. She was *new,* having had an existence of but thirteen years, but haste was made to exhibit her hitherto unknown boundless resources. In the autumn of 1875, President Grant appointed Alexander R. Boteler, of Jefferson county, and Andrew J. Sweeney, of Ohio county, as the West Virginia members of the National Board of Exposition Managers. On the 14th of December ensuing, the Legislature passed an act authorizing the appointment of a State Board to consist of five members, and appropriated $20,000 to defray the expenses of the State's exhibit. Fourteen days later, Governor Jacob named as members of this board O. C. Dewey and G. W. Franzheim, of Ohio county; E. H. Beall, of Brooke county; Thomas Maslin, of Hardy county, and John P. Hale, of Kanawha county. The two national commissioners acted with those of the State and in the organization, Andrew J. Sweeney was elected President, and O. C. Dewey, Secretary. Professor M. F. Maury, of Charleston, was entrusted with the classification and arrangement of all exhibits; and with Professor William M. Fontaine, of the West Virginia University, who was detailed by the Board of Regents of that institution for the purpose, directed to prepare for publication all the information collected by the Board relating to the resources of the State. Four gentlemen—Messrs. A. R. Guerard, J. W. C. Davis, St. George Bryan, and Major R. J. Echols—were appointed to collect the exhibit. The Board resolved to erect a West Virginia building, as "Headquarters" at Philadelphia, and a site was selected on the eastern slope of George's Hill in Fairmont Park—the Exposition grounds. C. C. Kemble, an architect of Wheeling, drew the plans and specifications, and contracts were made with Henry S. White, of Marshall county, for its erection at a cost of $10,000. He built it entirely of the hard woods—eighteen varieties—of that county, using in its construction 65,000 feet of lumber finished in natural colors. The exhibit was placed in a temporary structure erected in the rear of the "Headquarters," while large blocks and masses of bituminous coal stood here, there, and everywhere on the plot of ground surrounding the building. Some of them had been hauled fifty miles or more from the mines or seams, by ox-teams, to a railroad station for transportation to Philadelphia. One of these was from a vein fourteen feet in thickness, on Roaring creek in Randolph county.

This exhibit attracted the attention of visitors from every part of the world, to all of whom the riches of West Virginia had been unknown hitherto. Within the building were specimens of petroleum in various stages from the crude to the refined; blocks of timber of the many varieties of the hard woods, cut into many forms, sections, and quarters, that the grain and its susceptibility to finish and polish might be seen. Then there were specimens of iron, wines, grains, lime-stone, building-stone, marble, wood-work, crockery, potter's clay, black flint, yellow ochre and millstone rock. The work of the school children was also displayed and consisted of drawing, class work, composition, etc. A shield made by George B. Crawford, of Wellsburg, exhibited a piece of every variety of wood growing in Brooke county; and Professor Howard H. Johnson, Principal of the West Virginia Schools for the Deaf and the Blind, had on exhibition large maps prepared for the instruction of blind pupils. That $20,000 expended, paid back to the State millions in invested capital.

WEST VIRGINIA AT THE WORLD'S COLUMBIAN EXPOSITION AT CHICAGO, IN 1893.

The lapse of seventeen years after the Centennial Celebration brought the World's Columbian Exposition at Chicago in 1893. Great development had come to West Virginia and her people were ready to avail themselves of an opportunity to again exhibit to the world the resources of the State. On May 13, 1890, Governor Fleming nominated J. W. St. Clair, of Fayette county; and J. D. Butts, of Jefferson county, to be appointed by the President of the United States as representatives on the National Board of World's Fair Managers. Then in compliance with an act of the Legislature, passed March 4, 1891, the Governor named a Board of Managers for the State, composed of William N. Chancellor, of Wood county; Robert S. Carr, of Kanawha county; John S. Naylor, of Ohio county; George M. Bowers, of Berkeley county; and Sydney Haymond, of Harrison county. At the organization of the Board, William N. Chancellor was elected President; M. C. McKay, of Jackson county, Secretary; and George M. Bowers, Treasurer. March 14, 1894, the Legislature appropriated $40,000 "for the purpose of exhibiting the resources, products, and general development of the State," and for the erection of a State Building on the World's Fair Grounds in Jackson Park, Chicago, not to cost more than $20,000. The Board proceeded with its work. J. L. Silsbee, an architect of Chicago, drew the plans and specifications for the building, and the contract for its erection was awarded to Thomas J. Miller of Parkersburg.

In 1893, the Legislature appropriated $20,000 additional, making $60,000 in all. The style of building erected was strictly colonial; it was a wide spreading house with great piazzas, recalling those of the historic homes along the Potomac and the James. The broad verandas made almost a complete circuit of the mansion and the northern and southern points formed a semi-circular porch. The doors and windows, stairways and halls, were all of hospitable proportions. The ornamentation followed the same idea, being carved out in classic forms, in the way of festoon and other graceful arrangements of flower and leaf. The main entrance was surmounted by the arms of the State in bas-relief. On each floor were two fine colonial fire-places with wood mantels elaborately carved. The main floor was reached through a vestibule flanked by committee rooms, and after passing this the visitor entered the large reception hall, having parlors with drawing rooms and toilet rooms. The second story contained other committee rooms and also a large assembly room 76x34 feet, and thirteen feet high. The exhibits were largely composed of minerals and things beautiful and curious connected with mining and metallurgy. Handsome cabinets of various kinds were constructed for this display. The building was of wood with high pitched shingle roof, the outside being weatherboarded and painted. The interior was plastered, with hard wood finishings, and the ceilings were of ornamental iron work. All of the material used in the structure was native to the State except that of the roof and a portion of the framing timbers. The State's exhibit here was in the several exhibit buildings—Forestry, Mines, Metallurgy, Education, etc. All were highly creditable to the State whose resources were made more widely known to the world than ever before.

WEST VIRGINIA AT THE LOUISIANA PURCHASE EXPOSITION.

Eleven years more passed away and brought 1904—the year of the Louisiana Purchase Exposition at St. Louis—the greatest World's Fair which the world has ever seen. West Virginia hailed it as another opportune time to show to the nations of the earth her inexhaustible resources—the products of her mines, forests, fields, orchards, gardens, shops, and factories. On the 11th of January, 1902, Governor A. B. White appointed as members of the West Virginia Commission of the Louisiana Purchase Exposition, Honorable N. E. Whitaker, of Ohio county; Colonel A. H. Winchester, of Upshur county; Honorable C. E. Gerwig, of Wood county; Honorable John T. McGraw, of Taylor County; Colonel Fred Paul Grosscup, of Kanawha county; Honorable F. S. Landstreet, of Tucker county; and

Colonel Ely Ensign, of Cabell county. The last named died January 27, 1902, and Colonel D. E. Abbott, of Cabell county, was appointed, February 5, 1902, to fill the vacancy. Mr. Landstreet resigned March 24, 1903, and the same day Governor White appointed Honorable Frank Cox, of Monongalia county, to fill the vacancy. The Board organized at Charleston on the 16th of April, 1903, by the election of Mr. Whitaker as President; Mr. Grosscup, Vice-President; Mr. Winchester, Secretary; and Mr. Abbott, Treasurer. At a meeting at Parkersburg on the 22nd of July ensuing, Mr. Virgil A. Lewis was selected as historian and statistician to compile the Hand-Book of West Virginia for distribution at the World's Fair. The same date, the following gentlemen were selected and invited to act as an advisory committee as representative of the coal interests of the State; Edward W. Parker, Coal Statistician for the United States Geological Survey, Washington, D. C.; John Edwin Watson, of Marion county; Fairfax S. Landstreet, of Tucker county; Arthur Lee, of Randolph county; James Elwood Jones, of McDowell county; and Frank A. Hill, of Roanoke, Virginia.

On September 19, 1903, Hon. A. E. Kenny was appointed in connection with the Oil and Gas interests of the State, and to represent the Commission before the several County Courts. The same day Mr. Oreon E. Scott, 815 Chestnut Street, and Mr. Charles S. Clouston, 407 North Broadway, both of Missouri, were appointed resident representatives in St. Louis.

On December 4th, ensuing, the following named gentlemen were appointed by the lumbermen of the State as their representatives to act as an advisory committee regarding the forestry interests of the State at the Louisiana Purchase Exposition; that it to say:

THE COMMITTEE ON FORESTRY.

Officers.—Jos. J. Linehan, Chairman; E. Stringer Boggess, Treasurer; A. H. Winchester, Secretary.

Members.—Jos. J. Linehan, Nicholas county, Cherry River Boom and Lumber Co.; Geo. B. Curtin, Braxton county, Pardee Curtin Lumber Company; J. H. Chapman, Webster county, New Dominion Lumber Company; F. O. Havener, Randolph county, Holly Lumber Company; W. M. Ritter, McDowell county, W. M. Ritter Lumber Company; E. C. Colcord, Kanawha county, Bowman Lumber Company; D. G. Courtney, Kanawha county, Manufacturer of Staves; A. Thompson, Tucker county, Blackwater Lumber Company; J. H. P. Smith, Wood county, R. M. Smith and Com-

pany; J. H. Brewster, Lewis county, Bright & Brewster; E. Stringer Boggess, Harrison county, Wholesale Lumber; A. H. Winchester, Upshur county.

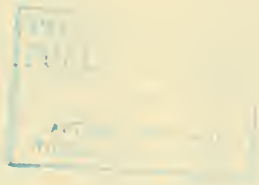
It was resolved to place the State's exhibit in the Exposition Buildings and there they are to be seen. In the Mines and Metallurgy Palace, the State has 8,000 square feet of floor space; in the Forestry Building, 5,000; in the Agricultural Building, 4,000; and ample space for other exhibits in the Palace of Education, and elsewhere.

The State Building stands on the "Plateau of States." The plans and specifications were prepared by Geisey & Ferris, Architects, of Wheeling; and Caldwell & Drake, well known all over West Virginia as the builders of the Annex of the State Capitol at Charleston, the court house of Wood county, the jail and sheriff's residence of Webster county, and many other public buildings in West Virginia, and whose office is in Parkersburg, were the contractors. Watson J. Shay & Son, of Lee county, Illinois, were the sub-contractors, and right well did they do the work.

The building, covering 76x76 feet, and costing $20,000, is Colonial in style with classic Greek domes on the corners and a large dome in the center of the roof which is used as an observatory. There are porches sixteen feet wide on the front and one side and in the rear, and a balcony on the other side. Broad inviting entrances on the three sides, guarded by bear and deer in sculpture—suggestive of our native forests—and the wide porches and large columns give to the structure a massive, imposing appearance. Throughout the building are splendid ornamental metallic ceilings, donated by West Virginia manufacturers. It is painted an ivory white thus producing a pleasing contrast with the green foliage of the forty-seven forest trees that stand within a hundred feet of its walls. Around it bloom a profusion of wild flowers native to the forests of eastern Missouri. The interior of the building is arranged with special adaptation to the uses for which it is designed. On the first floor is a large reception hall covering about a third of the space; on the left on entering, the room of the Commission; and on the right, a ladies' waiting room, while in the rear are toilet rooms, information rooms, check rooms for baggage, a mail room, and men's smoking room 22x22 feet. A stairway ten feet wide with broad landing, leads to the second floor, on which is a banquet hall 35x70 feet, with offices, bath rooms and bed chambers. From here, wide doors open on the broad verandas over the porches on which the shade of the forest trees fall every hour of the day.

West Virginia's exhibits are in competition with those of all the world. Yes, her coal, which is spread out over the widest and best part of the Appalachian Coal Field, is here, as well as her coke and oil, both from among the richest fields in the world; with specimens of her hard and soft woods from her forests which still cover two-thirds of the State. Here, too, are specimens from her herds and flocks, the products of her fields and orchards, of the handiwork of her factories, and the samples of her building stones, slates, sands, minerals, clay, and ores.

But, after all, the best exhibit West Virginia makes at St. Louis is that of her people—her men and women. Not in all the world beside can a nobler manhood and womanhood—braver men and fairer women—be found than in the Upper Potomac and Trans-Allegheny Regions. Out of the wreck and ruin of war they have brought forth a State—Minerva-like, full grown—and without the creation of a dollar's worth of debt, have placed it in the van of American States. Noted alike for muscle and intellect, these men and women—West Virginians from both sides of the Alleghenies—ready to grapple with the problems of the present and future, are at St. Louis, the peer of any people from the Orient or Occident. Our men of brain and brawn, and our women in their beauty, noble in their home life and in all that embellishes and adorns society, are here. Let West Virginia exhibit her people to the world and let them see what the world can teach—for the world is at St. Louis. In this gathering from all lands of every kindred and tongue in which all are so wondrously alike and yet so marvelously unlike, West Virginia does not suffer by comparison.



STATE MINE INSPECTORS.

Isaac M. Kelley,
First District.

Edward Pinkney,
Third District.

Samuel S. Cooper,
Fourth District.

Jerry Westinke,
Fifth District.

James W. Paul,
Chief Inspector.

Earl A. Henry,
Second District.

PART TWO

THE NATURAL RESOURCES OF WEST VIRGINIA. THE PRODUCTS OF HER MINES, FORESTS, FIELDS, AND GARDENS. THE GEOLOGY OF THE STATE. ITS COAL BEDS.

INTRODUCTORY.

"Those who seek gold, silver, copper, tin, lead, and other costly metals," says Professor Israel C. White, the State Geologist, "should waste no time in West Virginia. Traces she may have of all, but none in commercial quantity. Volcanic disturbances, great faults, quartz veins and extensive metamorphism of sedimentary rocks which always accompany the rare metals are comparatively unknown within her borders. But while precious stones, gems, and metals have been denied the Little Mountain State, yet, generous nature has so richly endowed her with common minerals and with other common things that her natural wealth is unsurpassed by any equal area on the continent. These are some of her riches: A genial climate, midway between the extremes of heat and cold, with an average rainfall of forty-five inches, well distributed throughout the year, giving abundant moisture for crops, as well as ample water supply for the numerous streams and rivers; a fertile soil yielding abundant returns to agriculture, grazing, horticulture, and unsurpassed for apples, peaches, pears, cherries, and all of the smaller fruits; virgin forests of both hard and soft woods, more extensive than those of any other State in the Union; clays, shales, and silica beds, for brick manufacture of every description, and glass of every quality; limestones of purest composition and of exhaustless quantity; building stones of every kind except marble, granite, and other metamorphic rocks; and natural gas fields, far exceeding those of her sister State, Pennsylvania; and last but not least, COAL, in very great variety and quantity. These are some of the common possessions of West Virginia which, within the last few years, have attracted to her domain investment capital from many portions of the world."

Until within the last few years, but little was known by the outside world of the marvelous natural resources of West Virginia. The great avenues of commerce and trade lay along the northern and southern borders of the State, or down the Ohio river, which stretches along its western boundary for nearly three hundred miles, and population and travel from the East swept heedlessly by through the "Gateways to the West"— Pittsburg and Cumberland Gap—to find a home in the Western country, lured thither by visions of the fertile lands of the Plains, rich mines in the Rocky mountains, or the gold fields of the Pacific coast, and thus leaving, unseen and unexplored, in the trans-Allegheny Region of Virginia—now West Virginia—her rich soils, the wide extent of her forests, and her limitless natural resources, the whole making up the vastest aggregation of wealth ever known within the same limits, on this continent, or indeed, anywhere else on the globe.

THE STATE GEOLOGICAL AND ECONOMIC SURVEY.

The Legislature, by act passed February 26, 1897, created a Commission to make a Geological and Economical Survey of the State. It is composed of the Governor, State Treasurer, President of the State University, President of the State Board of Agriculture, and the Director of the West Virginia Agricultural Experiment Station. Among its enumerated duties are the following:

1. To examine Geological formations of the State with special reference to their economic products, as to clays, ores, and other mineral substances and fuels.

2. To make an examination and classification of the soils and a study of their adaptability to particular crops.

3. To make an examination of the forests and timber lands with reference to the economic utilization of the same.

4. To make an examination of the physical features of the State with reference to their practical bearings upon the occupation of the people.

5. The preparation of special geological and economical maps to illustrate the resources of the State.

6. The preparation of special reports illustrating the geology and natural resources of the State.

7. The consideration of such other scientific and economic questions as are of value to the people of the State, and the marking of the true meridian points in its several county seats.

8. To appoint as Superintendent of the Survey, a geologist of established reputation, and make annual reports to the Legislature.

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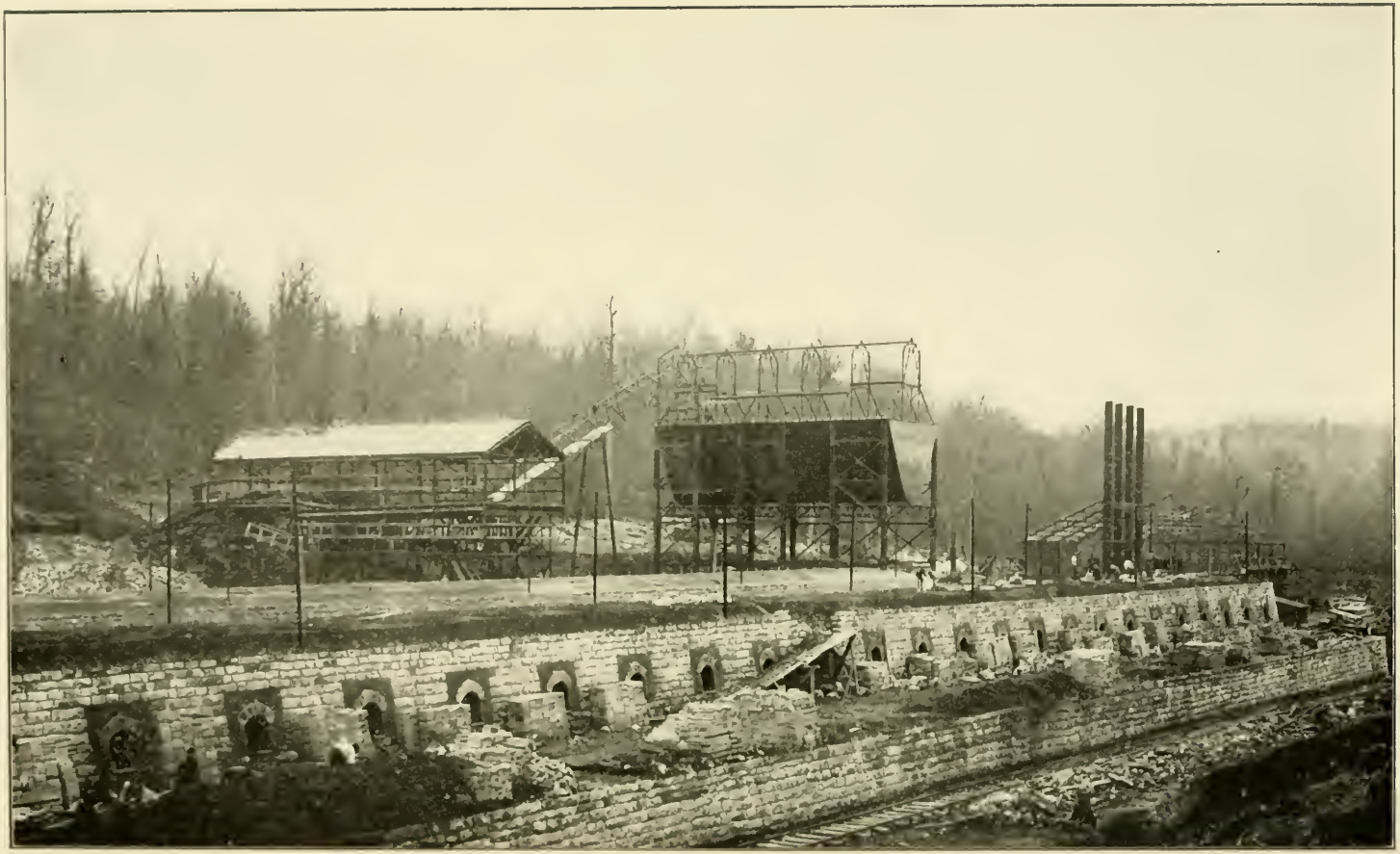


COKE OVENS, STEEL TIPPLE, CONVEYOR, SLACK BINS AND ELECTRIC POWER HOUSE—Coalton, Randolph County—(See p. 210.)

The Commission organized speedily after its creation and its first act was the appointment of Doctor Israel C. White, as State Geologist, and, certainly, no wiser choice could have been made. A complete staff was organized, and work began. A geological map of the State was prepared and published in February, 1899. This was followed in March of the same year by the publication of Vol. I, of the "West Virginia Geological Survey," containing 392 pages. It was very properly devoted to oil and gas, for millions of dollars are annually expended within the State in search of petroleum and natural gas; hence the State Geologist considered it to be the first duty of the Commission to give to this great expenditure all the aid and direction that geology can supply.

In June, 1903, Vol. II, of the "West Virginia Geological Survey" was issued. It contains 725 pages and is designated as the "Report on Coal." It is by far the most valuable publication ever made by the State. The work of the Commission is now being prosecuted with energy. The sum of eighty-five thousand dollars has been expended, and soon the State will possess a full and complete Geological Survey. Then will a knowledge of every detail of her natural resources be easily accessible.

From Vol. II, of the Survey has been obtained the following classification of the stratigraphy of the State, deemed necessary to a knowledge of the position of its coal areas.

THE GEOLOGICAL FORMATIONS OF WEST VIRGINIA.

The geological formations of the State may be classified as to location, thickness, and extent, under six distinct groups or series, as follows:

I. The Dunkard Series, the thickness being from 1,100 to 1,200 feet.
II. The Monongahela Series, the thickness being from 260 to 450 feet.
III. The Conemaugh Series, the thickness being from 400 to 800 feet.
IV. The Allegheny Series, the thickness being from 225 to 1,050 feet.
V. The Kanawha Series, the thickness being from 722 to 800 feet.
VI. The Pottsville Series, the thickness being from 250 to 2,000 feet.

These Series are now to be noticed briefly, but in such a manner as to present generally, the stratigraphy of each.

THE DUNKARD SERIES.

In his first description of the strata of the State, Professor White gives to the upper formations, the name of "The Dunkard Series," because of exposures along Dunkard's creek in Monongalia county. It rests on

the Waynesburg Coal as exposed in the Monongahela Valley. This Dunkard Series extends over every portion of the State and to it he assigns an average thickness of 1,100 feet.

The Gilmore Sandstone:—Its upper formation is known as the Gilmore Sandstone, from twenty-five to thirty feet in thickness, and so named by Doctor John J. Stephenson, from a township in Green county, Pennsylvania. Throughout Monongalia, Marion, Wetzel, Marshall, Tyler, Doddridge, western Harrison, and elsewhere in West Virginia, it caps the knobs and hill-tops which rise from one hundred to two hundred feet above the general surface. Masses of this may be seen in the high cliff tops of the region mentioned, where it is the principal agency in supporting the higher portions of the Dunkard Series from erosion, and thus holding up the "ridge lands" into broad arable fields favorably located for agriculture.

The Windy Gap Limestone:—Lying immediately under the Gilmore Sandstone is the Windy Gap Limestone of fresh water origin, of a light grey color and having a thickness of from eight to ten feet. It may be seen near the hill-tops in Marshall, Wetzel, Marion and Monongalia counties.

The Highest Bituminous Shale:—Thence downward for a distance of two hundred feet below this limestone is an interval, seldom well exposed, but which appears to consist of red shales, brown micaceous sandstones, and thin limestones, few of which are sufficiently characteristic to merit a special name. Within it, twenty-five or thirty feet below the Windy Gap Limestone there occurs an impure coal and coaly shale, which has been observed in a few localities in the northern part of the State. "It is," says Professor White, "the highest known bed of anything approaching coal in composition, in the Dunkard Series. . . . It appears to be little better than a highly bituminous shale, and is of interest, only, as being the highest bituminous stratum yet found in the Appalachian Basin. After another interval of a hundred feet is a stratum of limestone several feet in thickness and this and the Windy Gap stratum, coming as they do, high up on the ridge lands of the counties where they exist, contribute largely to the fertility of the upland soils of the "Permian Area."

The Nineveh Sandstone:—A hundred feet below the last named limestone, or more properly, two hundred feet below the Gilmore Sandstone, is what is known as the Nineveh Sandstone, so called from the village of Nineveh, in Green county, Pennsylvania. It extends from the northern border of the State as far south as Doddridge county, where its cliffs, a

yellowish-grey in color, may be seen a hundred and fifty feet above the water levels.

The Nineveh Coal:—Immediately beneath the Nineveh Sandstone, lies a thin coal seam from six to twenty-five inches in thickness known as the Nineveh Coal, and which appears to be co-extensive with the Nineveh Limestone. In descending, it is the second bituminous stratum of the Appalachian Field. It has been mined for local use in Wetzel county, at an elevation of one hundred and thirty feet above water levels.

The Nineveh Limestone:—Thirty feet below this coal lies the Nineveh Limestone of wide distribution, the stratum being from twenty to thirty feet or more in thickness. It extends from the Monongahela river to the Great Kanawha and its croppings may be seen well up the hillsides in Wirt, Gilmer, Jackson, Roane, and Wood counties, in the last of which it gives a name to Limestone Hill post office.

The Fish Creek Sandstone:—A hundred feet below the Nineveh Limestone, lies the Fish Creek Sandstone, confined chiefly to the northern counties. It is a very fair quality of building stone and is quarried extentively for that purpose.

The Dunkard Seam:—At an interval of from one to twenty feet below this is what is known as the Dunkard Coal Seam, so called because of its out-crop in the valley of Dunkard's creek, near the West Virginia-Pennsylvania line. It is seldom more than twelve or fifteen inches thick. "It covers," says Professor White, "a considerable area in western Marion, and in Wetzel and Marshall counties, and has occasionally been mined by 'stripping' along the streams."

The Jolly Town Coal:—But a few feet below the Dunkard Coal is what is known as the Jolly Town Seam, so named from its out-croppings at a village of that name in Pennsylvania. In Monongalia county it is from eighteen to twenty-four inches thick, and has a wide distribution extending, as it does, from Monongalia into Marion, Harrison, Marshall, Wetzel, and Tyler. It has been mined at several points along the Monongahela.

The Washington Limestones:—Immediately below the Jolly Town Coal lie the Washington Limestones—Upper and Lower—separated by a bed of bituminous slate or shale filled with marine fossils. These Limestones may be seen as far south as the Little Kanawha river.

The Marietta Sandstones:—Beneath these Limestones are found the Marietta Sandstones, one hundred feet or more in thickness, so called from their presence in the West Virginia hills along the Ohio river opposite that city. They form long lines of cliffs on the summit of many ridges in

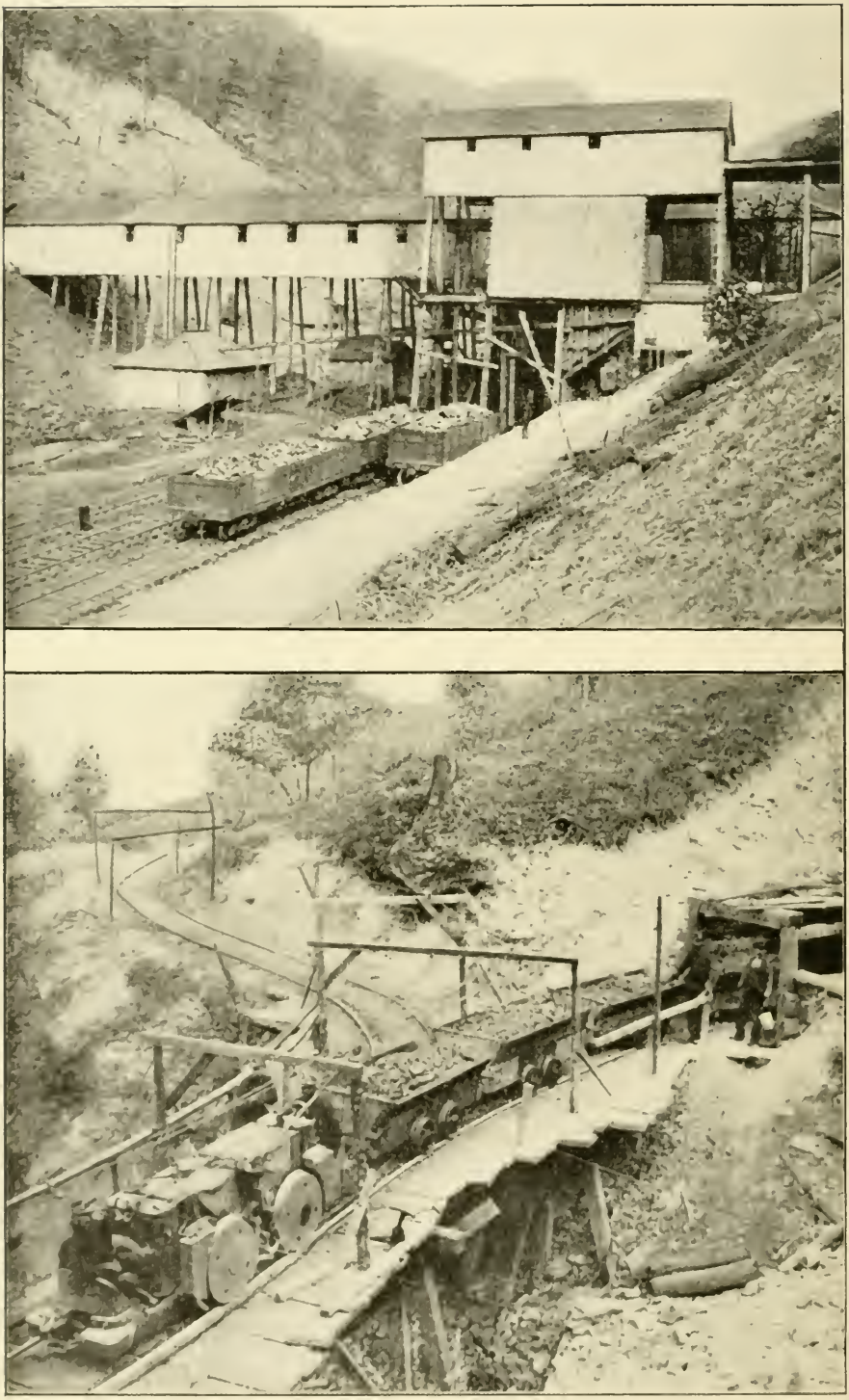
Pleasants, Ritchie, Roane, Jackson, Mason, Calhoun, Gilmer, Wirt, Lewis, Mingo, Logan, and Wayne, where they have weathered into fantastic shapes, many of which from a distance resemble immense haystacks. These are extensively quarried in many localities for grindstones.

The Washington Coal Seams:—Next below lie the Washington Coal Seams—so called from Washington, Pennsylvania, the thickest, most important and widely extended coal of the whole Dunkard Series. "It is," says Professor White, "generally a multiple seam, having alternate layers of coal and slate in its upper half, and generally, eighteen to twenty inches of good coal in its lower portion, the entire seam often attaining a thickness of ten feet." It is of wide extent, being present in Monongalia, Marion, Harrison, Marshall, Wetzel, Tyler, Pleasants, Doddridge, Ritchie, Gilmer, Calhoun, Wirt, Wood, Jackson, and Roane, thus extending over fully a third of the State. It is mined in many localities.

The Waynesburg "A" Coal:—Ninety feet below the Washington Coal is the Waynesburg "A" Coal, which extends southward from the Monongahela river, through Marion, Harrison, Doddridge, and Tyler counties in the last two of which it is mined having there attained a thickness of three and a half feet.

The Waynesburg Sandstone:—The Waynesburg "A" Coal rests upon the Waynesburg Sandstone, a coarse, massive, yellowish white conglomerate of very wide distribution, extending as it does entirely across the State. "Being seldom less than fifty and often seventy-five feet in thickness, it makes," says Professor White, "a line of rugged cliffs along its eastern outcrop from where it enters the State in Monongalia county, across Marion, Harrison, Lewis, Gilmer, Calhoun, Roane, Kanawha, Putnam and Cabell to where it leaves the Appalachian Trough in Wayne county." It is especially massive and pebbly where it rises from the bed of Pocatalico river just below Walton, and for many miles down that stream, as well as in all the country to the southward, where the southeastward rise of the strata carries it up into the hill-tops just before it disappears from the same a few miles west from Elk river. This same stratum comes out of the Ohio river along the Ohio shore in the vicinity of Blennerhassett Island and its massive top is frequently visible at low water in the bed of the Ohio at many localities between Parkersburg and Letart Falls."

The Cassville Shales:—Immediately beneath this Waynesburg Sandstone formation, lies the Cassville Plant Shales, a bed of grey, sandy, fossiliferous shale named from a village seven miles northwest of Morgantown. It is rich in fossil cockroach faunæ and many Permian types of



SCENE IN THE GREAT KANAWHA RIVER COAL FIELDS—(See p. 212.)

plants. It appears to be co-extensive with its sandstone covering and, being the basal stratum of the Dunkard Series, reposes on the great Waynesburg Coal Seam. This Series, as we have seen is 1,100 feet in thickness, made up of sandstones, shales, limestones and coals—the last of which, because of their thin beds and impure character "will," says Professor White, "only become important in the far distant future when the thick, pure coals of the other series below have been practically exhausted."

THE MONONGAHELA SERIES.

The Monogahela Series, so designated by Professor White, lies immediately under the Dunkard Series. It varies in thickness from two hundred and sixty feet along the Ohio river to over four hundred feet in the central portion of the Appalachian Basin. Descending, it begins with the Waynesburg Seam, immediately under the Cassville Shale, and extends downward so as to include the celebrated Pittsburg Coal, and having within its interval six distinct coal beds, viz: the Waynesburg, the Little Waynesburg, the Uniontown, the Sewickley, the Redstone, and the Pittsburg, separated by limestones and shales peculiar to the Series. In the northern part of the State nearly one-half of the rock material composing the Monongahela Series is limestone; red shales are unknown; while massive sandstones are seldom found except along the northern side of the Monongahela out-crop. The disintegration of these limestones, limy shales, and soft rocks, gives origin to a gentle topography and an extremely fertile soil, thus forming in Monongalia, Marion, Harrison, Lewis, Marshall, Ohio, and Brooke counties, as well as portions of Barbour, Upshur, and Taylor, one among the best agricultural and grazing regions in the State.

The number and thickness of these several coal beds and the character of the interstratified rock material, as well as the total thickness of the Monongahela Series, are now to be noticed briefly.

The Waynesburg Coal:—The Waynesburg Coal, the highest member of the Monongahela Series, receives its name from Waynesburg, the capital of Green county, Pennsylvania. This seam is always multiple bedded, being generally separated into a "roof," "upper" and "lower" divisions, by shale and fire clay partings, the whole often nine to ten feet in thickness. This coal appears to attain its maximum thickness and importance in Marion and Monongalia counties since it thins down in every direction when traced away from this region. The impure fire clay which separates the two main divisions of the Waynesburg Coal, varies much in thickness, often within a few yards swelling from six inches to as many feet. It is

usually termed "horse-back" by the miners and hence the seam is often locally known as "The Horse-Back Vein." It is of wide extent; crops out of the river hills above Moundsville; may be seen a hundred and forty feet above creek level in Gilmer, Lewis, Calhoun, and Roane counties, and may be traced on southward to the Great Kanawha. "On account of its high per cent. of ash," says Professor White, "the Waynesburg Coal is not of any economic importance anywhere in the State except for local domestic use where no better fuel can be obtained. It is possible that when mined on a commercial scale and the bone coal discarded, some of the areas in Marion and Monongalia may furnish a marketable grade of steam and domestic coal."

The Little Waynesburg Coal:—The Gilboy Sandstone:—Underlying the main Waynesburg Coal, at an interval of from ten to twenty feet and separated from it by the "Gilboy Sandstone" is formed a thin streak or vein of coal from six to twelve inches thick to which John J. Stevenson, the Pennsylvania Geologist, has given the name of the Little Waynesburg Bed. Nowhere does it attain a minable thickness and hence it is of no economic importance. The Gilboy Sandstone which, as stated, is immediately above it, derives its name from the Gilboy Cut on the Baltimore and Ohio Railroad in Marion county, where it is very prominent. It is massive in Harrison county and especially prominent in Marion, Lewis, and Gilmer counties. It is a very hard, rather fine-grained, grayish white rock, seldom containing pebbles and where present, forms a bold cliff or bluff.

The Uniontown Coal:—About one hundred feet below the Little Waynesburg Coal is a persistent seam called the Uniontown Coal because of its presence at the town of that name in Pennsylvania. It is immediately below a massive sandstone called, for a similar reason, the Uniontown Sandstone. This is a coal seam of vast extent. It is seldom more than three feet in thickness, often only two, and sometimes represented merely by black slate. So that from an economic standpoint it is of little present value. At many localities in Lewis, Gilmer, Ritchie, Calhoun, Roane, Jackson, Mason and on through to the Great Kanawha, the coal so often found under a massive sandstone and long considered as identical with the Waynesburg Bed, is now believed by many to represent the Uniontown horizon. This question is left for a future answer, to be determined by a detailed study of the stratigraphy of the region. It is mined at many localities, among them being on Tanner's and Leading creeks in Gilmer county; and along the tributaries of the Sand Fork in Lewis. It is sometimes called the "Chestnut Oak Vein," because it crops out high up on the hills where that

tree abounds. It has been mined in the vicinity of St. Mary's in Pleasants county, where it appears to be identical with the Maxburg Coal of Ohio; it is also believed to be the same as the Koontz Coal being mined in the George's creek basin of Western Maryland.

The Great Limestone Stratum :—In the northern part of the State, beneath the last mentioned coal, is the Great Limestone Stratum, one hundred and fifty-nine feet in thickness and of fresh water deposit, no marine fossils having ever been seen in it and the only fossils known to it being bi-valve crustacea with fish remains of unknown affinities. Some of the limestone layers are highly magnesian and otherwise impure, and these are so interstratified with the pure layers that very little economic use has ever been made of them. Many of the layers make fine road material and also burn into a good quality of lime for building and fertilizing purposes. In passing from the northern end of the State southwestward, these limestones gradually disappear and are largely replaced by red shale and sandy beds, so that southward from the Little Kanawha river, throughout the region of the Great Kanawha, only a few thin layers of impure limestone can be found in the entire series.

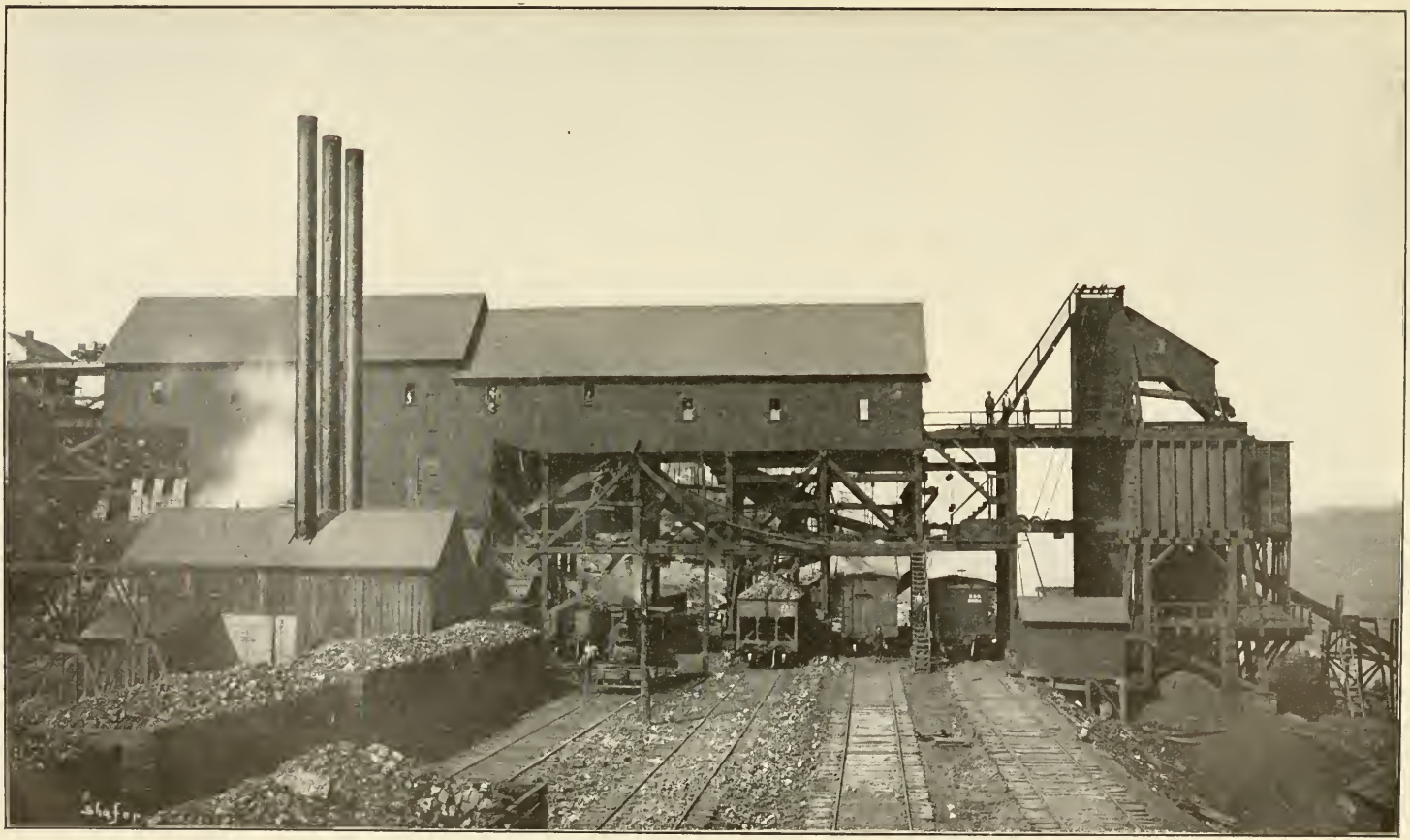
The Sewickley Sandstone :—Immediately below the Great Limestone, is the massive Sewickley Sandstone, often cuting out and taking the place of the Great Limestone. Its perpendicular cliffs may be seen along the Monongahela and extending through Harrison, Lewis, Gilmer and other southwestern counties. It often attains a thickness of sixty feet. It is usually a good building stone and is quarried for that purpose in Lewis county and along the West Fork river.

The Sewickley Coal:—This is a widely persistent bed lying under the Sewickley Sandstone and attains its greatest importance along the Monongahela river in Monongalia and Marion counties. It is a workable seam five or six feet in thickness, entirely along the front of these two counties. It extends to Harrison and underlies all of Wetzel and Marshall counties, where, along the Ohio river, it has a thickness of but two and a half feet. It extends far into northeastern Ohio, where it is known under a variety of local names. It also extends into Western Maryland, where it is called the "Gas" or "Tyson" Vein. It underlies several Western Pennsylvania counties, but thins down in the southern part of Harrison county until it ceases to be a workable vein. There is a seam at the mouth of Tanner's creek in Gilmer county which varies from two to three feet in thickness and is of good quality. Geologists are not agreed as to whether it belongs to the Sewickley or the Uniontown Seam, and this will not be known until

the geology of that region is taken up and worked out for publication. No trace of the Sewickley Coal has ever been found south of the Little Kanawha river. The coal of this seam has a fine reputation, is usually interlaminated with thin layers of mineral charcoal, burns with a bright white flame, leaves only fine ash with little clinker, mines well in large blocks, and cokes well after being crushed and washed. It is extensively mined in all the region through which it extends.

The Redstone Coal:—Lying from fifty to seventy feet below the Sewickley Coal is an important seam known as the Redstone Coal, so designated because it is first found on a stream of that name in Fayette county, Pennsylvania. Over it lies the Sewickley Limestone, grey in color and from five to twenty inches in thickness; it is usually pure and makes an excellent building or agricultural lime. The Redstone Coal is thin in Pennsylvania but attains a thickness of from four to six feet on Scott's and Robinson's runs in Monongalia county. It thins down again in Marion county but farther south becomes a very important and valuable coal seam in southern Harrison and adjoining regions of Barbour, Upshur, Lewis and portions of Gilmer; and it is believed, though not definitely determined, to extend as a good workable seam into Lewis and Braxton and thence across Clay, Roane and Kanawha. The Redstone Coal rests upon a stratum of yellowish impure limestone from five to twenty feet in thickness and known as the Redstone Limestone. It is too impure for economic use and hence it is seldom quarried except for road material.

The Pittsburg Coal:—Lying from thirty to fifty feet below the Redstone Coal, and from ten to twenty feet below the Redstone Limestone, is the Pittsburg Coal Seam, the lowest in the Monongahela Series, and which, among the rich mineral deposits of the Appalachian Field, stands preeminent. Other coal beds may have a wider area, or extend with greater persistence, but none surpasses the Pittsburg Coal in economic importance and value. "So far," says Professor White, "as one may be able to judge as to its relative age, when comparing the coals of distant countries, it correlates with the bed at Commentrey in central France." The area of its workable coal in Pennsylvania, Ohio, West Virginia and Maryland is now placed by geologists at about six thousand miles. In West Virginia it extends to the North Potomac Region and is present in Monongalia, Marion, Hancock, Ohio, Brooke, Marshall, Wetzel, Preston, Taylor, Barbour, Harrison, Lewis, Gilmer, Clay, Roane, Putnam, Kanawha, Mason, Cabell, and Wayne, with evidences of existence elsewhere. So careless has been the mining, heretofore, in this seam, that Professor White estimates that two thou-



SCENE AT NEW ENGLAND MINE, IN THE FAIRMONT COAL FIELDS—Marion County—(See p. 224.)

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A
TILDEN FOUNDATIONS.

sand tons per acre are lost without attempt to recover it. He says: "There is no doubt that the time will come, many generations hence, when at great cost, the Pittsburg bed will be remined to secure the coal which is now rejected in its roof and bottom members, since all of it would be valuable fuel if freed from the included slates and clays." It is mined in the Fairmont Region; the Clarksburg Region; Tyrconnell District, the Berryburg District; the Wheeling Region; the Hartford City District on the Ohio; Raymond City, on the Great Kanawha river; in the hills overlooking the Big Sandy, in Wayne county, and at a hundred other points in the Little Kanawha Valley and elsewhere, either for commercial or domestic purposes. It is too well known throughout the world to require further notice here.

THE CONEMAUGH SERIES.

This Series was named by Franklin Platt, of the Second Geological Survey of Pennsylvania, in 1878, from the rocks of the Series prominent along the little river of that name. It includes all the strata from the floor of the Pittsburg Coal—bottom of the Monongahela Series—down to the top of the Upper Freeport Coal, and having an average thickness of six hundred feet, though it varies from four hundred at the western margin of the Appalachian Field, to eight hundred near Charleston, West Virginia. This Series, thus limited above and below, consists of two widely different members, lithologically considered, the upper being composed largely of soft, red, marly shale called the Red Sediments; the lower, of a stratum of black flint. This Series is the same as that named by Professor William B. Rogers, and known to early geologists as the "Lower Barren Measures." The chief strata of the Conemaugh Series are as follows:

The Red Beds or Sediments: —These are spread out over a wide expanse and compose the soft portion of the Upper Conemaugh Series which extends entirely across the State from the southern Pennsylvania line to the Big Sandy river, a distance of, say, two hundred and fifty miles. They may be traced from the Ohio river to the Allegheny Highland, but on the latter have faded out into green, yellow or grey. Where not exposed, these Red Beds are penetrated everywhere by the diamond drill, and are ever present in the oil and gas wells. Saturated, they are speedily dissolved and give rise to the sticky red mud so common on the West Virginia highways, and in most instances, are the cause of the land-slides along the railroads, and on the north hillsides in the farmers' fields. Every West Virginian west of the Alleghenies is familiar with this Red Bed Stratum of the Upper Conemaugh Series. It is the most valuable portion of the rock constitution of the State.

The Upper Pittsburg Limestone:—From twenty-five to thirty-five feet below the Upper surface of the Red Bed Sediments is a stratum from five to six feet thick known as the Upper Pittsburg Limestone. It is earthy and impure and of little economic value except for farm use.

The Upper Little Pittsburg Coal:—The Upper Little Pittsburg Coal lies immediately under the last mentioned limestone. It is persistent, and at Fairfax Knob in Tucker county, where it is known locally as the "Coking Seam," has a thickness of four and a half feet.

The Lower Little Pittsburg Coal.—About fifty feet farther down lies another coal bed, known as the Lower Little Pittsburg Coal. It is seldom of any economic importance in West Virginia, so far as known; is sometimes absent entirely and at other times represented by only a few inches of black slate or impure coal.

The Lower Pittsburg Limestone:—Immediately under the Lower Little Pittsburg Coal, lies the Lower Pittsburg Limestone, a stratum from eight to ten feet in thickness. It is an excellent landmark for determining the horizon of the Pittsburg coals above, but, like its upper counterpart, because of impurities, is of little economic value.

The Connelsville Sandstone:—Only a few feet below the last mentioned limestone, there is often found a massive sandstone of great economic importance. Because of its presence in the bed of the Youghiougheny river at Connelsville, Pennsylvania, it is known as the Connelsville Sandstone. The sand grains are cemented by silica and peroxide of iron and it is believed to be the best building stone of the entire coal measures of the State. The walls of the Hospital for the Insane at Weston are largely constructed of this rock, obtained at Mount Clare, Harrison county, and it was used in the piers of the suspension bridge over the Monongahela river at Morgantown, and though this was erected more than sixty years ago, the rock shows no signs of disintegration. This stratum is from twenty to fifty feet in thickness and as one of the chief rocks of the Conemaugh Series, has played an important part in topography. It is one of the principal supporters of the hills in the Potomac basin and to the westward through the counties of Barbour, Harrison, Monongalia and others.

The Little Clarksburg Coal:—To a widely persistent coal bed just under the Connellsville Sandstone, Professor I. C. White, has given the name of the Little Clarksburg Coal. Its croppings are observed at many points along Elk creek and the West Fork river, in Harrison county. It may be seen also at Berryburg in Barbour county, and has been observed in Lewis and Upshur, and is known as the Franklin Coal throughout Western Mary-

land. Its position is from one hundred and thirty to one hundred and fifty feet below the Red Beds of the Conemaugh Series. It is filled with the teeth, scales and bones of fossil fishes.

The Clarksburg Limestone:—Immediately below the last described coal and its underlying fossiliferous black slate is a stratum of limestone, often from twenty to thirty feet in thickness, and to it Professor White has given the name of the Clarksburg limestone, because of its exposure near the city of that name. Many years ago it was mined and used in the manufacture of iron at an old charcoal furnace on the West Fork river. It has a wide distribution over northern West Virginia, is often burned into lime, and is used for Macadamizing public highways.

The Morgantown Sandstone:—Only a few feet below the Clarksburg Limestone, lies another of the great sandstone horizons of the Conemaugh Series. It has a thickness of twenty-five feet and because of its fine exposures in Monongalia county, has been called the Morgantown Sandstone. It is of a pretty yellowish grey cast, splits easily into blocks of any desired size, and has been extensively used in the foundations and walls of the buildings of the West Virginia University, and in other structures at Morgantown, but when exposed to the action of water in the lock walls of the Monongahela river, there has been a rapid disintegration. Of all the rocks of the coal measures none is of wider extent than this. Occasionally it thickens up to a hundred feet and stretching away from the West Virginia-Pennsylvania line to the northern boundary of Kentucky, its abrupt bold cliffs may be seen in the hills fronting on the rivers and streams through the counties of Monongalia, Marion, Tyler, Preston, Barbour, Upshur, Lewis, Braxton, Clay, Kanawha, Putnam, Mason, Cabell and Wayne, even to the bluffs overhanging the Big Sandy river.

The Elk Lick Coal:—Separated from the last mentioned sandstone by only a few feet of shale, is a coal bed of wide distribution and often of workable dimensions. It is known as the Elk Lick Coal because of its croppings along Elk Lick Creek which flows into Casselman's river, a tributary of the Youghiougheny in Pennsylvania. It has been mined along Decker's creek in Monongalia county; in Preston north of Cheat river, where it is known as the Top Vein, and has a thickness of about four feet; in Taylor county; in the hills along Tygart's Valley river, in Barbour county; near Buckhannon in Upshur county; at Vandalia and along the West Fork river, in Lewis; and at Glenville, in Gilmer. Thence southward through Braxton, Roane, Clay, and Kanawha, the surface croppings would indicate that it is thin and of little importance here. But along Twelve Pole river, in Wayne, it has thickened up to two and a half feet, and has a thickness of two feet at Fairfax Knob in Tucker county.

The Elk Lick Limestone:—Down two hundred and twenty-five feet in the Conemaugh Series and just below the last mentioned coal, is the Elk Lick Limestone, of common occurrence in Monongalia, Taylor, Barbour, and Lewis counties, and co-extensive with the coal which it underlies. It burns into a good quality of lime for building or fertilizing purposes.

The Birmingham Shale:—Underlying the Elk Lick Limestone is a variable stratum being occupied by a sandy shale in which, occasionally, a pebbly sandstone makes its appearance. This is about twenty feet in thickness, and, because of the exposure of these shales on the south bank of the Monongahela at Birmingham, it has received its name from that town. In the vicinity of Grafton, in Taylor county, it appears as a sandstone where it has been quarried for building purposes, yielding, as it does, a fair building stone of a yellowish grey color.

The Richmond, Ohio, Insect Fauna:—The next step in descent brings us to a shale deposit having a thickness of about twenty feet and a rich faunæ of cockroaches. It derives its name from Richmond township, Jefferson county, Ohio, where its exposures are very prominent. Twenty-two species of these fanuæ have been enumerated and are closely allied to those of the Cassville Plant Shale at the base of the Dunkard Series.

The Ames or Crinoidal Limestone:—"We now come," says Professor White, "to one of the most interesting deposits, from a geological standpoint, in the entire Appalachian Field." This is the green fossiliferous limestone known as the "Ames" of the Ohio Geological Survey, and the "Crinoidal of the Pennsylvania geologists. This stratum, and its overlaying limy shales, constitute the first beds found in descending through the Carboniferous formations which contain clearly marked marine fossils. "Coming almost exactly midway in the Conemaugh Series," says Professor White, "it forms a datum plane, easily recognizable, from which the observer can measure either up or down to determine the identity of important strata. When once thoroughly known it cannot be confused with any other stratum in the Series, since, in addition to being the highest limestone to contain marine fossils, it has a peculiar lithology over a wide area that is distinctly different from any other rock series." The marine type of the bed can be traced from Lewis county in central West Virginia to Pennsylvania, thence into Ohio, to again enter West Virginia in Cabell county, and to be recognized for the last time as it passes under the water level of the Big Sandy river in Wayne county.

The Crinoidal or Friendsville Coal:—The sudden transition from peat bog to marine limestone, marks an epoch in the geological history of the

COAL TIPPLE AND FLEET, THE LATTER BOUND IN ICE, 1904—Ohio River, Mason County—(See p. 231.)

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ASTOR, LENOX AND
TILDEN FOUNDATIONS.

Appalachian Field. Immediately beneath the limestone last described, is a coal bed known as "Fossil Coal" because it contains the shell formation of its limestone roof. And for the same reason it has been called Crinoidal Coal. More than sixty years ago, Charles Lyell visited western Maryland and catalogued the fossils of this seam. It was mined as early as 1858 at Burning Springs in Wirt county, where it has a thickness of twenty inches. It is mined near Haymond's Mill, in Harrison county, where it is known as "Shell Coal," and at Newburg, in Preston county; it is visible at Woodford's Crossing, in Lewis county; and is reported to have a thickness of two feet at Huntington in Cabell county.

The Pittsburg Red Shales:—Directly under the last described coal is a vast stratum of soft, red or purple shale, known as the Pittsburg Red Shale. It is from thirty to one hundred feet thick, and makes such a conspicuous belt of red soil that it may be readily traced entirely across West Virginia from the Pennsylvania line to the northern boundary of Kentucky. Little economic use has, as yet, been made of these red shales in West Virginia. "But they would," says the State Geologist, "make a fine grade of red brick, and some of the layers would doubtless make a good quality of ornamental tiling for hearths and mantels." Red roofing tile made from them, at Huntington, has been used to cover the new University Library Building at Morgantown, and roofing tile and "clay shingles" are extensively manufactured at Spilman in Mason county.

The Saltzburg Sandstone:—The next step in descent brings us to what is known as the Saltzburg Sandstone, which is so called because of its presence at the town of that name in Westmoreland county, Pennsylvania, where it is one hundred feet in thickness. It is prominent in Preston county, this State; is seen but seldom in Monongalia; but is quite massive in the counties of the Elk river Valley. It is the "First Cow Run Sand" of the oil fields.

The Bakerstown (Barton) Coal:—Beneath the sandstone last mentioned is a coal seam known as the Bakerstown Coal, from a village of that name in Allegheny county, Pennsylvania, which correlates with the Barton Coal of western Maryland. It is four hundred and eight feet below the top of the Red Beds of the Conemaugh Series; is extensively mined at the village of Colliers on the Pan-Handle Railroad in Brooke county; is present with a thickness of from three and a half to four feet along Cheat river in Preston county; feebly represented in Taylor county; is mined in Barbour, Upshur, and Lewis; and is present in Braxton, Roane, Clay and Kanawha counties.

The Irondale Limestone and Iron Ore:—Just under the Bakerstown Coal is a thin bed of limestone, from four to five feet in thickness, known as the Irondale Limestone, it having been used as a flux in the old Irondale furnace on Cheat river, at which the manufacture of iron was conducted for years, being made from a vein of silicious iron ore two feet in thickness existing immediately beneath the limestone.

The Upper Cambridge Limestone:—This is a limestone formation next in descent below the iron ore stratum mentioned above and derives its name from its presence in the vicinity of Cambridge, Ohio. It is of wide extent and, filled with marine fossils, may be seen along the small streams in Brooke and Hancock counties, and along the Monongahela river in Monongalia, Marion and Taylor counties, where it is identical with the Pine Creek Limestone of the Pennsylvania geologists.

The Buffalo Sandstone:—The limestone just described, immediately overlies another of the great sandstone stratum of this series. From its presence along the bluffs of Buffalo creek in Butler county, Pennsylvania, it is known as the Buffalo Sandstone. It is from fifty to seventy-five feet in thickness and forms the solid base on which the business portion of Morgantown is built. It is seen in Preston county; is extensively quarried for building purposes in Taylor county; forms the cliffs along Tygart's Valley river in Barbour county, where it has been quarried for the railroad bridge piers; is used for building stone at Philippi; may be traced in the cliffs reddened with iron along Buckhannon river; and thence through Lewis and Braxton into Webster county where it crowns the highest peaks along Holly river with its massive layers. It is seen high up in the hills of Clay county; thence, in rock walls along the Elk through Kanawha county. It forms cliffs along the streams in Lincoln, Boone, Logan, Cabell and Wayne counties, and the bluffs overlooking the Big Sandy river.

The Lower Cambridge Limestone:—This forms the base of the Buffalo Sandstone as its counterpart forms the roof and is identical with the Brush Creek Limestone of the Pennsylvania Geologists. It is usually twenty feet in thickness but thins down in many localities to one or two feet and is thus present in the northern Pan-Handle counties. It is seldom exposed at the surface in West Virginia, but Professor White has observed it in the railroad cuttings in Upshur and Lewis counties, and it may be seen on Twelve Pole river, in Wayne county, three miles from the town of Ceredo.

The Mason Shales:—These Shales, immediately underlying the last named limestone are abundant at Mason on Elk river, seven miles above Charleston, Kanawha county, and the stratum is designated from that

Locality. It is filled with marine fossils, is present in Wayne, Clay, Braxton, Upshur and Preston counties and throughout northern West Virginia, and extends into Pennsylvania and Maryland.

The Mason Coal :—Because of its presence in the Elk river valley, the Mason Coal derives its name from the same source as that of its roof shales. It has a thickness of four feet and is one of the most widely persistent coals of the Conemaugh Series. It is mined at Mason, Graham Mines, Queen Shoals and other points in the Elk river valley. The coal is bright and cokes well. It extends into Braxton and has been mined at the mouth of Holly river; it is also found in Lewis, Upshur, Barbour, Taylor, Preston and Randolph, but has its greatest thickness along the Great Kanawha above Charleston, where it is mined at Cedar Grove, North Coalburg and other points. Thence it extends through Lincoln, Boone, Logan and Mingo counties to the Big Sandy.

The Upper Mahoning Sandstone :—Separated from the Mason Coal by from five to thirty feet of fire-clay and shales is a massive sandstone group known as the Upper and Lower Mahoning Sandstones, sometimes from eighty to a hundred feet in thickness and usually separated into two horizons but frequently united as at Raven Rock, in Pleasants county, where the precipice is a hundred feet high. This group, named from the Mahoning river in Pennsylvania, plays an important part in shaping the topography of West Virginia, where it protects many softer rocks from erosion. Its particles are cemented by silica and peroxide of iron. Its cliffs on mountain side and hill-top crowns are visible all over southwestern West Virginia from Upshur, Webster and Randolph counties, across Nicholas, Clay, Kanawha, Fayette, Boone, Lincoln, Logan, Wayne, Mingo, Wyoming and Raleigh, and may also be traced through the Northern Pan-Handle of the State. It forms the capstones of Turkey Bone mountain in Randolph, of Cottle Knob in Nicholas, and of the elevated crests in Fayette, Raleigh and Wyoming, lying, as it does, from twelve to fifteen hundred feet above the neighboring valley floors. It quarries into blocks of any desirable size and is used extensively for building and bridge masonry. The stone used in the State Capitol at Charleston, the court house at Buckhannon, and in several other structures throughout the State, comes from this source.

The Mahoning Coal:—Lying between the Mahoning Sandstones is a coal bed deriving its name from the same source as the sandstones which lie above and below it. It is of considerable economic importance for steam and domestic purposes in several regions of the State. It has long been mined in Hancock county; is found by the drill in Monongalia and

Preston and is an important fuel bed with a thickness of from three and a half to four feet in parts of Barbour, Randolph, Upshur and Lewis, where it is sometimes known as the "Four Foot Vein." It has been used for domestic purposes in Harrison, Braxton, and the northern part of Fayette county, and is known to exist through Boone, Lincoln, Logan and Mingo counties, and is mined on Tug river.

The Thornton Fire-Clay:—At a number of localities in the State there is found, between the last mentioned coal and the lower Mahoning Sandstone a stratum known as the Thornton Fire-Clay, deriving its name from that of the village of Thornton in Taylor county. It is of very considerable value, since it contains both the hard and plastic varieties of clay. Its croppings may be seen in Taylor and Preston counties, where it has a thickness of from five to six feet.

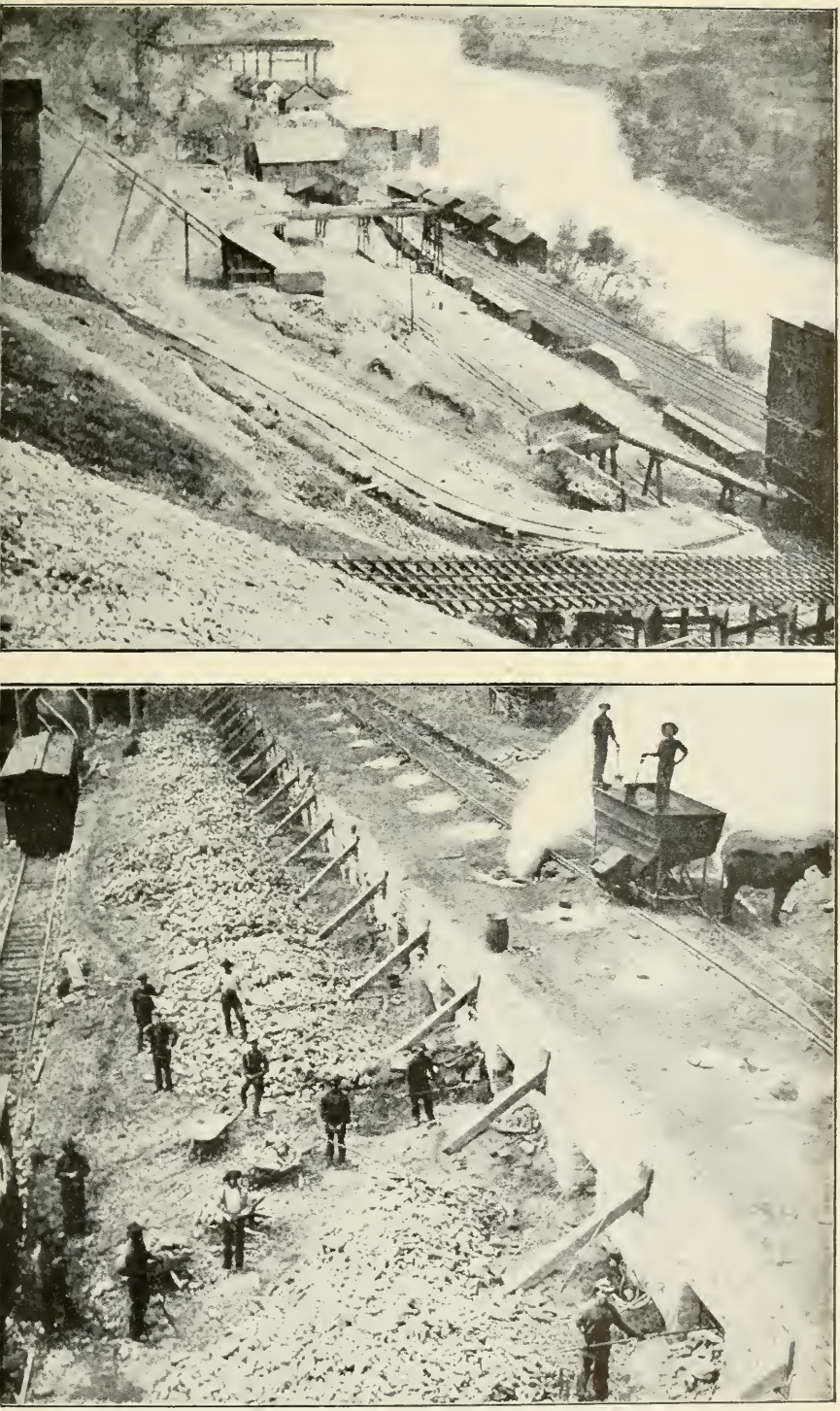
Mahoning Limestone :—This is an impure stratum from four to six feet thick of a buff or yellowish hue, of fresh water deposit, and lies among the shales between the Thornton Fire-Clay and the Lower Mahoning Sandstone. Its croppings are seen in the hills of Barbour county, along Cheat river in Preston county, and in some of the railroad cuttings in Wayne county. Thus it would seem to stretch entirely across the State.

The Uffington Shale :—This is a dark sandy fossiliferous shale, often from twenty to forty feet in thickness and derives its name from the village of Uffington in Monongalia county where it has an extensive development. It contains marine fossils as well as many plant remains.

The Kanawha Black Flint :—At last, after a descent of eight hundred feet through various strata, we have reached the base of the Conemaugh Series—the Kanawha Black Flint. Its horizon is that of the bed of the Great Kanawha at Charleston, whence it rises rapidly and soon attains an elevation of several hundred feet above that river. It may be seen in railroad cuttings above Charleston, and escapes from the summits of the mountains in Fayette county, where it overlooks Kanawha Falls from an elevation of fifteen hundred feet. It extends into Clay and Nicholas counties and makes the rapids in Elk river known as Queen Shoals, and may be traced into Wirt county in the valley of the Little Kanawha.

THE ALLEGHENY SERIES.

We have now reached another important formation—the Allegheny Series—but which was long known as the Lower Productive Measures. It has for its top the Upper Freeport Coal, directly under the Black Flint; and for its basal stratum, the widely extended Clarion Coal. The thickness of



SCENE IN THE NEW RIVER COAL FIELDS—(See p. **232.**)

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this Allegheny Series varies greatly in different portions of its field. In Monongalia county it has a thickness of two hundred and twenty-five feet; three hundred in Preston county; and this is considerably increased in Mineral, Grant, Randolph, Webster and Lewis; and this thickening continues until the Great Kanawha river is reached, where there is one thousand feet of sediments within its limits. Everywhere, its topography may be traced by a rich soil with terraced hills and a series of benches rudely parallel to each other, between which rugged slopes rise at angles of from twenty-five to forty degrees. The area of this series may be said to be co-extensivee with that of the State.

The Upper Freeport Coal:—The top of the Series begins with a coal bed of vast extent known as the Upper Freeport Coal. Next after the Pittsburg Coal of the Monongahela Series, it is the most extensive, and among the most important coals of the entire Appalachian Coal Field. This seam enters Preston county from Pennsylvania, where it has a thickness of more than six feet; passing westward toward the Ohio it becomes thinner, as it does to the eastward in Mineral, Grant, and Tucker counties. Its principal area of valuable thickness and quality is found in a belt from twenty to thirty miles in width and extending entirely across the State through Monongalia, Preston, Taylor, Barbour, Randolph, Upshur, Webster, Braxton, Clay, Nicholas, Fayette, Kanawha, Roane, Lincoln, Wyoming, Logan and Mingo counties. In the northern part of the State it is a soft coking coal, but in the central part assumes the Splinty type, and in the Kanawha-New River Region has a tendency to Cannel; the cannel deposits of Fayette, Kanawha and Wayne, lie within its horizon.

The Middle Freeport Coal:—Twenty-five feet below the coal last described, and beneath the big slates of Monongalia and Preston, is a coal bed known as the Middle Freeport Coal. This middle seam has a thickness of from two to three feet along Tygart's Valley river in Barbour county and in the Roaring Creek Region in Randolph county; and has a workable thickness in other portions of the State.

The Bolivar Fire-Clay:—The next step in descent is to the Bolivar Fire-Clay, important in Pennsylvania, but, as yet, undeveloped to any considerable extent in West Virginia. Tests made in Monongalia county show the seam to contain very good hard flint clay, as well as several feet of the soft or pliable variety. "This horizon," says Professor White, "will doubtless furnish fire-clay at many localities in the State when exploited and opened."

The Upper Freeport Limestone:—Immediately under the last named

clay, and about thirty feet below the Upper Freeport Coal, lies the Upper Freeport Limestone, a fresh water deposit from eight to ten feet in thickness. But little is known of it outside the counties of Hancock, Preston, and Monongalia, where it has been burned into lime for agricultural purposes.

The Roaring Creek Sandstone:—Next below the Upper Freeport Limestone, is found the Roaring Creek Sandstone, deriving its name from Roaring creek in Randolph county and forming the Falls thereon, over which the water rushes for more than fifty feet. The stratum is from fifty to seventy-five feet in thickness, and fine exposures of it may be seen in the long cliffs stretching along Tygart's Valley river in the vicinity of Moatsville. It is massive in Braxton county, where it forms the Falls of the Little Kanawha; around the source of Buckhannon river; and lofty precipices in its horizon rise at many points along the Great Kanawha, Tug Fork, and Big Sandy rivers.

Lower Freeport Coal:—Lying from forty-five to seventy-five feet below the top of the Allegheny Series is the great coal deposit known as the Lower Freeport Coal, deriving its name, as does its upper counterpart, from the town of Freeport on the Allegheny river. It is a multiple bed and in West Virginia is believed to be divided into two seams. It is well known in the Northern Pan-Handle, where it is stated to be three feet eight inches in thickness, and also in Monongalia county. In Preston county it is known as the "Three Foot Bed." A vein in Marion and Taylor counties from five to six feet thick, is supposed to be identical with this. It has been identified in Barbour, Randolph, Lewis and in the valley of the Little Kanawha river; is mined along Elk river; is known to exist in Tucker, Grant, and Mineral, and at Charleston on Kanawha, is from eighty to one hundred feet below the bed of the river.

The Lower Freeport Sandstone:—Directly under the coal just described, is a stratum known as the Lower Freeport Sandstone. It has a thickness of from seventy- six to a hundred feet or more, in one unbroken solid massive rock and is, perhaps, the most persistent sandstone stratum of the Allegheny Series. It is hard, often pebbly, does not split easily, and hence is seldom quarried for building purposes. It frequently crops in bold projecting cliffs among the hills. In the oil fields it is known as the "Second Cow Run Sands," and it forms the rocky bed of Tygart's Valley river above Grafton. It may be traced by way of the source of Buckhannon river, thence down Gauley along the Great Kanawha and to the Guyandotte and Tug Fork rivers, marked throughout all its course by the vertical cliffs of the "Chimney Rock" type.

The Upper Kittanning Coal:—At a depth of about one hundred and twenty feet below the top of the Allegheny Series, and immediately under the Lower Freeport Sandstone is a coal bed known as the Upper Kittanning Coal. It attains a thickness of three feet in Monongalia county; is identified at the Falls of Tygart's Valley river; is present in the North Potomac Basin; has a thickness of two feet at the source of Buckhannon river; has been opened on Birch river; and it is believed that this is the coal mined at Cottle Knob in Nicholas county. What it may represent south of the Great Kanawha river, is unknown.

The Middle Kittanning Coal:—Passing downward through a thin stratum of shales and sandstones, we reach another deposit known as the Middle Kittanning Coal. It has a thickness of three feet and is of great purity and general excellence. It is mined in Hancock county; thins down to a vein of one or two feet in thickness along Tygart's Valley river; and appears to coalesce with the Lower Kittanning Coal in the North Potomac Region—that is, in Mineral, Tucker, and Grant counties.

The Lower Kittanning Coal:—This is one of the most persistent coal beds of the Allegheny Series and like those above it, derives its name from a town on the Allegheny river. Only traces of it have been found in Monongalia county, but it has a good working thickness at Newburg in Preston county, where it is shown to be an excellent fuel for steam and domestic use; has a thickness of five feet at the Falls of Tygart's Valley river; is present in Hancock county, and has been mined very successfully in Tucker county, both for fuel and coke, for more than twenty years. It is mined by a shaft four hundred feet deep at Henry in Grant county. In Marion county, it appears to be eight hundred feet under the bed of the river at Fairmont.

The Kittanning Fire-Clay:—Directly below the coal just described there is, in the northern part of the State, a bed of fire-clay which, in Hancock county, has a thickness of from five to fifteen feet, and has there given rise and development to the most extensive fire brick, sewer pipe, and pottery industries of the State. The clay is largely of the plastic variety. The only other point of its development is at Hammond in Marion county.

The Ferriferous (Vanport) Limestone:—This Limestone—the Vanport of the Pennsylvania geologists—is situated sixty feet below the lower Kittanning Coal. It is present in Hancock county and is believed to underlie Wayne county in the southwestern part of the State. There, however, it is most likely below the water level. It is represented by thin deposits

of iron ore in Taylor and Marion counties, and probably, by the Cannelton Cement Limestone, in Fayette county.

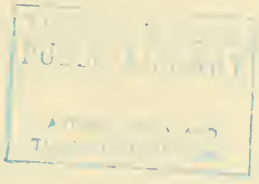
The Clarion Sandstone:—Next beneath this limestone, comes a massive stratum known as the Clarion Sandstone, so called from the town of Clarion, Pennsylvania. It is present in the Northern Pan-Handle; forms a vast massive ledge just above the Falls of Tygart's Valley river; is easily identified along Cheat river in Preston and Monongalia; and presents a cliff formation in Tucker, Grant and Mineral.

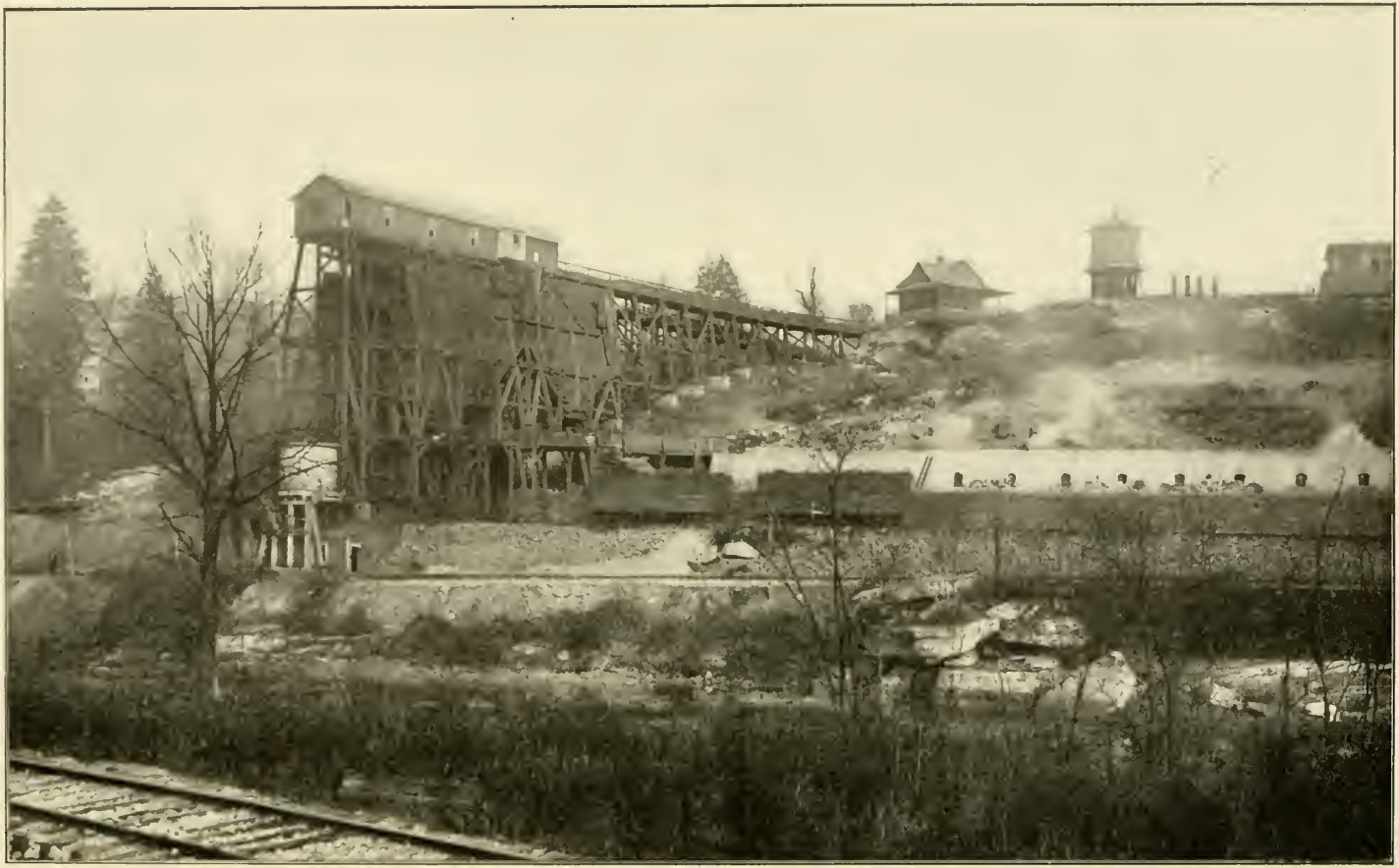
The Clarion Coal:—Immediately under the last mentioned sandstone, lies the Clarion Coal Bed, the lowest and last of the Allegheny Series. This is thought to be the seam mined on Bee Run in Preston county, where it is three to three and a half feet in thickness. It is double bedded along the Marion-Taylor line; has been observed at Harrison in Mineral county; and is believed to be identical with the "Grimmel Vein" at the source of Buckhannon river. It is mined in Hacker's Valley, and in Webster county, crops out along the West Fork of Holly river, whence it may be traced to the Great Kanawha, where it appears to correlate with the Eagle Seam of that region.

THE KANAWHA SERIES.

This is the most remarkable formation existing on the whole Appalachian Coal Field. It appears, in the Kanawha-New River Region, to be dove-tailed, or wedged in from the southeast under the Allegheny Series, or rather between its upper stratum—the Upper Freeport Coal—and the roof of the Pottsville Series below. This enlarges or thickens the Allegheny Series to one thousand and fifty feet in this region. To these intercollated strata, present here but not in the northern part of the State, Professor White has given the name of the Kanawha Series. This Series has been identified by some geologists with the lower coal measures of Europe. Within it lie seven famous coal beds of persistent areas, but known under local names. These may now be mentioned together with their supposed equivalents in the Allegheny Series.

The Stockton Coal:—Its equivalent in the Allegheny Series is the Upper Freeport Coal. It is the first or topmost of the Kanawha Series and lies immediately under the Kanawha Black Flint at the base of the Conemaugh Series. Between Webster and Nicholas counties on the north, and Tazewell on the south, it splits into two distinct seams known as the Stockton Proper and the Lewiston Seam, the two being separated by several





COAL TIPPLE AND COKE OVENS—Harding, Randolph County—(See p. 233.)

feet of shale or sandstone. The coal of the former was long used as a fuel for the salt furnaces along the Kanawha river between Charleston and Brownstown; together with its counterpart—the Lewiston—it is now mined at various points. These seams extend through the high hills of the Coal river basin and the upper Guyandotte, even to Tug river, and include the Cannel and some of the Splint Coals of this section.

The Coalburg Coal:—Next below the two seams just mentioned are strata of shales and sandstone from forty to a hundred feet thick, and then comes the Coalburg Coal believed to be the equivalent of the Lower Freeport Coal of the Allegheny Series. Most of this coal is of the Splinty type and is very valuable for steam and domestic purposes. It is mined at Coalburg, at Mammoth, along Cabin creek, at Belva in Nicholas county, and at many other points between Charleston and Kanawha Falls; and will doubtless furnish much valuable fuel from the hills overlooking the Big and Little Coal rivers, and the Guyandotte, when that region is developed.

The Winifrede Coal:—Another bed of excellent coal present in the Kanawha Series is that known as the Winifrede Coal, the equivalent of which is believed to be the Upper Kittanning of the Allegheny Series. It has long been successfully mined on Field's creek near the town of Winifrede, Kanawha county, and has taken its name from that locality. It was first mined for commercial purposes near Lewiston, and now operations extend across the Divide to the waters of Coal river. It is not a thick seam, but very pure, is extensively mined at many points, and seldom surpassed for steam and domestic purposes.

The Cedar Grove Coal:—Now a descent of from two hundred and fifty to three hundred feet of sandy measures, broken rocks imbedded in shales, often with thin irregular seams of coal of little economic importance and where sandstones frequently unite to form numerous grey cliffs, lies the horizon of the Cedar Grove Coal, the next lower, regular and valuable seam of the Kanawha Series. Its equivalent is thought to be the Middle Kittanning of the Allegheny Series. It receives its name from the village of Cedar Grove at the mouth of Kelly's creek on the Kanawha, where it was first mined on a commercial scale. Analysis shows it to be a coal of most excellent quality. It is worked in many localities and has a wide area extending as it does to the northeast under Nicholas county and to the southeast to the banks of Tug river in Mingo county; a distance between the two points of more than a hundred miles.

The Campbell's Creek Limestone:—Immediately under the last men-

tioned coal is a stratum of from fifty to one hundred feet in thickness and consisting largely of alternating shales and sandstones with thin seams of coal, but the chief feature being a peculiar earthy limestone known as the Campbell's Creek Limestone, so named by Professor White, who first observed it at the mouth of Campbell's creek, five miles above Charleston. It is persistent throughout a large portion of the Kanawha Valley.

The Campbell's Creek Coal:—Thirty-four feet below the last mentioned limestone is the most important coal seam of the Kanawha Series. Its equivalent is supposed to be the Lower Kittanning of the Allegheny Series. It is shown to be a multiple seam, splitting and becoming more complex as it extends to the southeast along the Kanawha river. The coal of this bed has long been used for gas making purposes; soft in texture, it cokes well and is, in some respects, entirely different from all other coals of the Series. It is known under various local names as the Peerless, Empire, Keystone, Gas No. 1, and Gas No. 2. This seam has a wide extent, being mined at Ansted, Fayette county, a thousand feet above the bed of New River; at Summersville, in Nicholas county; and has a fine development on the upper waters of Coal and Guyandotte rivers, including their tributaries in Boone, Lincoln, Logan and Wyoming counties, in the last of which it is known as the Big Bend Seam, and there has an elevation of eight hundred feet above the Clear Fork of the Guyandotte and two thousand one hundred and ten feet above Ocean tide.

The Brownstown Coal:—This seam, the next workable one below the Campbell's Creek Coal derives its name from Brownstown on the Kanawha, ten miles above Charleston—the name of which town has, however, recently been changed to Marmet. It seems not to have any equivalent in the strata of the Allegheny Series. A bed, known as the Powellton Seam, on the Kanawha, has a thickness of about four and a half feet with no slate or bone. It is thought to be identical with the Five Foot Vein, present along Middle Island Creek in Logan county. Analysis shows it to be a coal of good quality.

The Cannelton (Stockton) Limestone:—This is a thin bed of impure limestone among the shales and standstones that underlie the Campbell's Creek Coal at Campbell's Creek, in Fayette county. It derives its name from a man by the name of Stockton, who, as early as 1840, manufactured cement from it at that place. It is widely persistent in the Kanawha Valley and may correlate with the Ferriferous Limestone of Pennsylvania.

The Eagle Coal:—At last we have reached the lowest coal seam now being mined for commercial purposes in the Kanawha Series, the equiva-

lent of which is believed to be the Clarion Coal of the Allegheny Series. This seam is one hundred and fifty feet below the Campbell's Creek Coal, lies low down in the silt covered valleys, and was first mined on a commercial scale in the Kanawha Valley at the town of Eagle, in Fayette county, from which it derives its name. This coal is of the soft "gas" type, thus differing from the Splint coals of the upper half of the Kanawha Series; makes excellent coke, and is a good steam coal. It is mined at many points and doubtless has a large area, extending as it does to the banks of the Holly river in Webster county, and is mined for the use of locomotives at Pickens in Randolph. There is a coal bed known as the "Coking Seam" away to the southeast toward Tug river, which has a thickness of five or six feet, and corresponds to the Eagle Coal; it is found also in Logan county, and may be traced through the hills overlooking the Big Sandy.

The Little Eagle Coal:—About twenty feet below the last mentioned coal there exists a very pure seam of soft coking coal, but only from eighteen to twenty inches in thickness and hence has never been mined for commercial purposes. It is believed to extend through Fayette, Boone, Wyoming, and into Mingo and McDowell counties, and will in the far distant future become a very valuable seam.

The Eagle Limestone—"Black Marble":—Below the Little Eagle Coal, no other coal beds of workable dimensions are visible in the two hundred and fifty or three hundred feet of shales and sandstones that now form the basal stratum of the Kanawha Series. But imbedded in it, fifty feet below the Little Eagle Coal, lies an interesting bed of fossiliferous impure limestone, known from the town of Eagle as the Eagle Limestone. It contains marine fossils; lies imbedded in bituminous slate; is of a very dark color and is locally known as Black Marble. It prevails along Gauley river and its extent is, perhaps, limited to the Kanawha Region.

THE POTTSVILLE SERIES.

The lowest and last of the coal measures of the Appalachian Field has now been reached. To this, Professor William M. Fontaine, of the West Virginia University gave the name of the New River Series. But this has now been abandoned, later geologists having designated it as the Pottsville Series from a town of that name in Pennsylvania. This Series is everywhere in West Virginia very distinct in its physical aspect, its sandstones being harder, whiter, and more conglomerate than those of the Allegheny Series above. At the Pennsylvania line in Preston and Monongalia counties, the thickness is from two hundred and fifty to three hundred feet, but

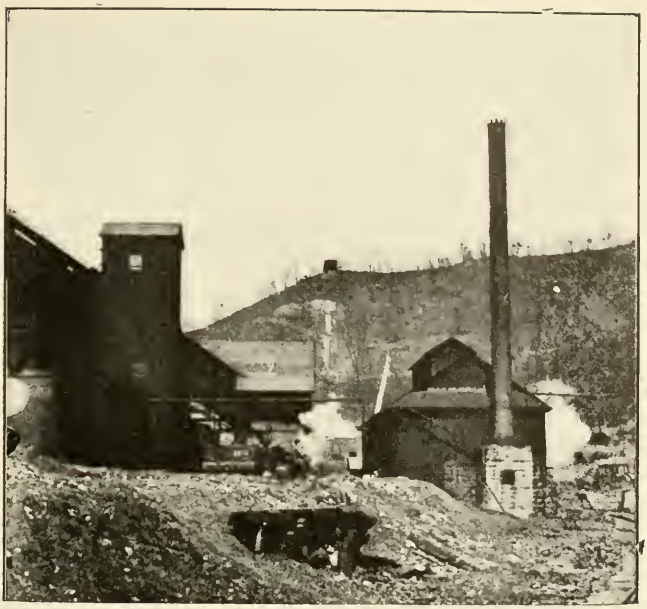
as we pass to the southwestward this increases to fourteen hundred feet at New River and attains a thickness of two thousand feet at the junction of the Elkhorn and Tug rivers in McDowell county.

The Homewood or Tionesta Sandstone:—This, with its massive thickness of fifty feet forms the roof of the Pottsville Series. Its grains and pebbles are cemented by silica and peroxide of iron, and it is thus rendered almost indestructible by atmospheric agency. This Series is the most important factor in shaping the topography of the eastern part of the Cumberland Plateau and the Allegheny Highland. "Wherever these beds come to the surface in West Virginia," says Professor White, "wild scenery and rugged topography are sure to be found. Rapid streams, high waterfalls, 'rock cities,' great cliffs, precipitous slopes, and barren regions, generally mark the lines where these rocks emerge to daylight. The lofty peaks of the Allegheny mountains owe their origin to this friendly mantle, while its upturned edges have preserved coal seams from complete erosion. The deep gorges, narrow canons and wild scenery of the North Potomac, Cheat, Tygart's Valley, Little Kanawha and Great Kanawha and Tug rivers, are all carved from these rocks as well as the 'Roughs of Tug' and the rapids of the Guyandotte." It is asserted by some geologists that the walls of the far-famed Hawk's Nest, the loftiest precipice in the State, are formed of this rock. The presence of these rocks marks in the flora of the State the region of evergreens where grow the white pine, the spruce, the hemlock, the cedar, the laurels and the holly.

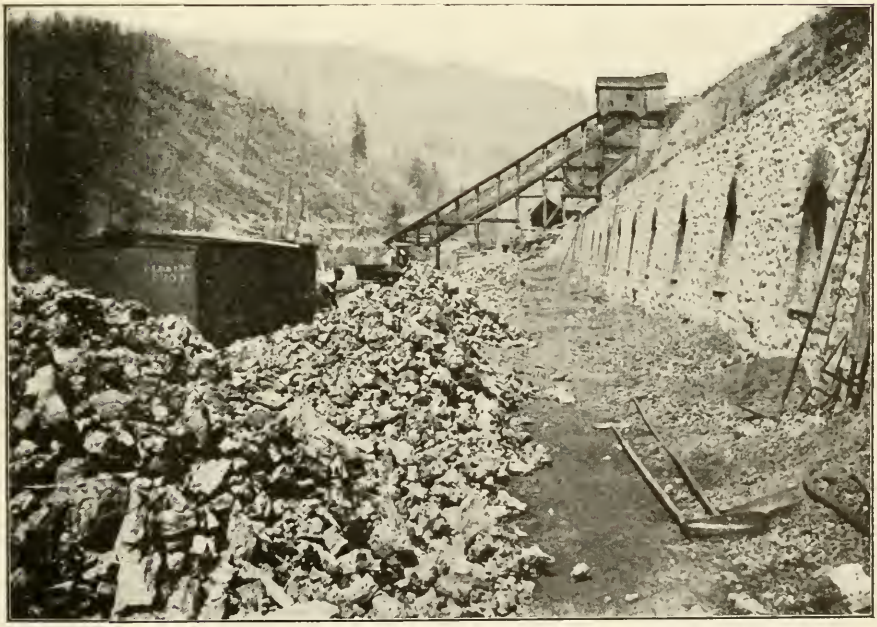
Along the whole southern crop of this Series, especially in the valleys of the New and Tug rivers are many of the purest coals of the State. These underlie the counties of McDowell, Wyoming, Mercer, Raleigh, Summers, Fayette, Nicholas, Webster, Randolph, Tucker, Grant, and eastern Preston. Let us now briefly mention the strata of this Series.

The Sewell (Nuttall) Coal:—To the solid masses of sandstone which cap the walls of the New River Canon at Nuttall, in Fayette county, has been given the name of Nuttall Sandstone, and the first coal of the Pottsville Series, on New River, to receive commercial development was the uppermost one in Sewell mountain, lying four hundred feet below the top of the Nuttall Sandstone. Its development has been confined largely to the New River District, but it has a wide area, extending as it does into Nicholas, Greenbrier and other counties. It is a type of the best Pottsville coals of southern West Virginia.

The Welch Coal:—The next seam in descending is what is known as the Welch Coal. It derives its name from the town of Welch on Tug river



SHAMOKIN TIPPLE, in Flat Top Coal Fields—(See 233.)



DELTA TIPPLE AND COKE YARD—Norfolk & Western Coal Fields—See p. 233.)

in McDowell county, where it is mined for local supply six hundred feet above the river. It extends southeasterly into Tazewell county, Virginia, and is extensively mined in a number of localities along Tug river in the county of McDowell, where it has a thickness of from three to three and a half feet. It is a coal of great excellence. The seam appears not to extend into the New River Region.

The Raleigh Sandstone :—This is a great pebbly sandstone of the New River Region, a hundred and fifty feet in thickness, underlying the Sewell Coal and forming the summit of the uppermost canon wall on the north side of New River and the floor of the region extending across Raleigh, northern Mercer, southern Wyoming, and through McDowell to the Kentucky line, through all of which it has been traced from the New River to the Elkhorn and Bluestone rivers.

The Beckley Coal :—In the vicinity of Beckley, in Raleigh county, along Piney river and its chief tributary, White Stick creek, is a coal seam just below the last mentioned limestone which derives its name from the town in the vicinity of its greatest development. It is generally single-bedded, and has a thickness of from three to six feet. It is often called the White Stick Seam. Its full extent is as yet unknown.

The Quinnimont (Fire Creek) Coal :—At an interval of two hundred feet below the Beckley Coal and three hundred and seventy-five feet below the Sewell bed, there is, along New River, a widely persistent coal seam, which, because it was first mined on a commercial scale at Quinnimont, in Fayette county, is known as the Quinnimont Coal. It is a thousand feet above the level of New River. When the mines were opened at Fire Creek, sixteen miles farther west, the operators were not quite sure that they were working the Quinnimont bed and the term Fire Creek Seam came into use. But this ceased after the certain identity of the bed in which they were working with that of the Quinnimont. It is a seam of wide extent, being mined along the main valley of New River and its tributaries where it has a varying thickness of from two and a half to five feet. It is generally single-bedded, and of most excellent quality.

The Horsepen Coal Group :—Of the coals known as the Horsepen Coal Group there are four beds all lying in the southern part of McDowell county, where the name is derived from Horsepen creek, a tributary of the Dry Fork of Tug river. These are known as the Upper Horsepen Seam, Middle Horsepen Seam, War Creek Seam, and Lower Horsepen Seam. The extent of the first of these is a question upon which mining engineers have not

agreed. The second is much split up with shale partings, although it has four feet of good clean coal along Horsepen Creek. The third is a much better coal than either the Upper or Middle seams. It has a thickness of from four and a half to five feet as shown by its exposures near Peeryville, the old seat of justice of McDowell. The fourth, evidently of local distribution, is confined to the region along the McDowell-Tazewell county lines, and is believed to be of little economic importance unless it should prove to be the same as the No. 5 Coal along the eastern slope of Flat Top mountain, which, on Simmon's, Crane, Flipping, and Wide Mouth creeks, has a thickness of from four to five feet.

Pocahontas Group:—In the extreme southeastern part of the State and along the line which separates the two Virginias, lies what is known as the Pocahontas Group, so called from a town of that name in Tazewell county, Virginia. The Group embraces four seams. These are numbered downward as Nos. 4, 3, 2, and 1. Seam No. 4, which lies eighty-five feet below the Lower Horsepen Series, mentioned above is a good bed of much importance, and is mined in the Elkhorn valley where it has a thickness of nearly four feet. It will in the future furnish a large area of good coal in southern McDowell and Mercer counties. Seam No. 3, which occurs from sixty-five to ninety feet below Seam No. 4, is the most important coal of the Pottsville Series, and next to the Great Pittsburg Seam, the most valuable mineral deposit of the entire Appalachian Field. No. 2 and No. 1, lying below in the order named, are too thin to be of much importance at present.

As a workable coal, so far as known, the Pocahontas bed in West Virginia is confined to the counties of Mercer, Wyoming, Raleigh and McDowell covering probably seven hundred square miles, of which five hundred is in McDowell county alone. It is believed, however, that tests with the drill will extend the field to greater limits.

The Pocahontas Coal, whether in the Gauley, New River, or Flat Top Regions, is an ideal steam coal. Low in volatile matter and high in fixed carbon, while very low in ash, sulphur, and moisture, these coals give off an intense heat with nearly smokeless combustion. The small proportion of sulphur they contain insures safety from spontaneous combustion on ship board, so that they have become the ideal coal for steamship and general naval purposes, and their use in these lines is constantly increasing.

The Pocahontas Group forms the basis of the Pottsville Series just described and which is the oldest and lowest of the true coal measures.

Then comes the Mauch Chunk Series, with its red shale beds overlying the Greenbrier Limestone. Beneath this are the Pocono Sandstones, occasionally holding some irregular, inpure coal seams which approach anthracite and have in the past excited much interest in Berkeley, Morgan, Greenbrier and other counties along the West Virginia-Virginia State line. This Pocono Sandstone is the 'Big Injun" oil sand of the northwestern part of the State.

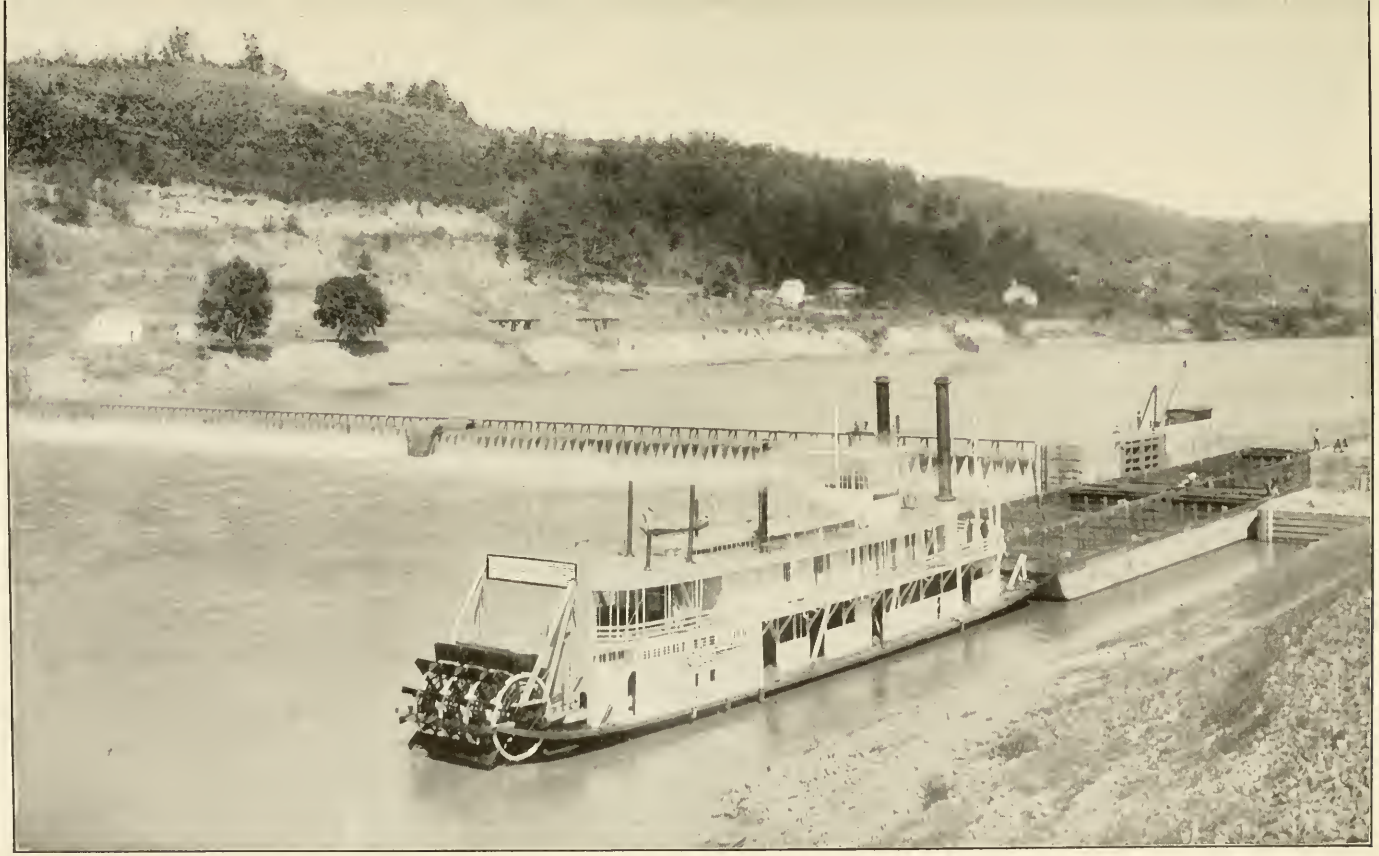
THE APPALACHIAN MOUNTAIN SYSTEM.

West Virginia lies wholly within the Appalachian Area and is, therefore, what the geological, geographical, and climatic conditions and influences of the great secondary mountain system of the continent make it. These elevations beginning in northern Georgia and Alabama, stretch away northeastwardly seven hundred miles to the Hudson, and may be traced eight hundred miles further, even to Cape Gaspe and the Gulf of St. Lawrence. The Indians called these the "Endless mountains," but to us they are known as the Appalachian Mountain System. The name Appalachian is derived from the Appalachees, a tribal organization of the Cherokees who once inhabited the lowlands bordering on the Gulf of Mexico, where, in 1528, they were found by the Spaniards. There in that "Appalachee Country," they have left their traces in corresponding local names. The Apalachicola and Apalachee rivers yet mark the place of their origin, as does the Bay of Apalachee, where Panfilo de Narvaez, the Spanish navigator, landed and found them in the above mentioned year. They were subdued in 1702 and driven up into the interior—that is into the foot-hills of what is now Northern Georgia and Alabama. M. S. De L'Isle's map published in 1720, shows the "Site of the town of the Appalachees in 1540," a little south of the present city of Mobile. Daniel Coxe, in his "Description of the Province of Carolana," in 1722, speaks of the "Palachian Mountains," now the highlands of northern Georgia and Alabama, and asserts that they were within the Grant of "Carolana" to Sir Robert Heath in 1630. On Father Charlevoix' map, made in 1720, and reprinted in English in 1766, the name "Appalachian Mountains," appears, but it is applied only to the highlands along the thirty-fifth parallel of north latitude which is now the northern limit of Alabama and Georgia. Father Hennepin and LaSalle both recognized the crest of this mountain system as the eastern

boundary of New France, and the Spaniards when they came into possession of Louisiana, regarded it as the dividing line between that province and the English colonies along the Atlantic coast. Meanwhile, the several ranges of the system came to be known under various local names, as the Cumberland, the Blue Ridge, the Alleghenies, the North Mountain, and the Laurel Ridge. But later, a general name was to be applied, first to these separately and finally, to them as a whole. In 1727, Colonel William Byrd, in his "Narrative of the Dividing Line"—between Virginia and North Carolina—speaks of the "vast Appalachian Range of mountains." This would seem to refer to the Blue Ridge alone, but Thomas Jefferson, in his "Notes on Virginia," 1781, ascribed the origin of this name to the Appalachees, who resided on Apalachicola river. "Hence," he observes, "the mountains giving rise to that river and seen from its various points, were called Appalachian Mountains: being, in fact, the end or termination only of one of the great ridges passing through the Continent." European geographers —English and French—of the eighteenth century extended the name, Appalachian, northward as far as the mountains extend; some giving it at first to the different mountain ranges, but finally all uniting in bestowing it upon the whole system.

THE APPALACHIAN COAL-FIELD.

The Appalachian Mountain System lying between New York and Central Alabama has an area of about 130,000 square miles and one-half of this extent or 65,000 square miles, lies west and northwest of the axis of this mountain system, slopes away toward the Ohio, and is known as Trans-Appalachia. Here long ages since, cycles ago, under the stimulating effects of a brilliant sun, a humid atmosphere heavily charged with carbonic acid, myriads of years before man appeared upon the earth, vast forests, gorgeous in their beauty and dense in their foliage, sprang up in widely extended swamps, flourished for awhile, then fell layer upon layer, decayed and made thick beds of slimy organic matter. Earthquakes with tremendous throes upheaved mountains and produced depressions. Then these depressions were swept over by huge waves of a stormy ocean, rolling far inland and depositing their burdens of sand, gravel, and clayey matter upon the vegetable masses of fallen forest. Oscillations afterward elevated this sand-gravel-clay-covered deposit and vegetable life appeared to be, at some remote period again submerged. These processes continued through ages of de-



TOW BOAT WITH EMPTY BARGES PASSING THROUGH LOCK NO. 6—Great Kanawha River—(See p. 234.)

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posits of earthy matter weighing down and shutting out from the influence of the atmosphere and the light of day the remains of plant life, in which condition they were transmuted into coal. Such is the theory of geologists in regard to the formation of bituminous coal, and doubtless a true one. Anthracite coal is bituminous coal cooked under pressure of subterranean heat.

THE AREA AND BOUNDARY OF THE APPALACHIAN COAL FIELD.

This Appalachian Coal Field is by far the most extensive contiguous coal formation of the world. Prof. Edward Hitchcock in his "Geology of the Globe," estimated its area as 100,000 square miles; others have placed it at 80,000; while Professor William Barton Rogers, who traced the field with a master hand, placed the productive area at 63,000 square miles, and we shall see how nearly accurate he was in his estimate. Writing of it he said: "It possesses a length of eight hundred and seventy-five miles and a maximum breadth between its eastern outcrop in Southern Pennsylvania, and its western edge in Northern Ohio, of about one hundred and eighty miles. It extends from Northern Pennsylvania to Middle Alabama, parallel with the Appalachian Mountain System, the axis of which lies just west of it. Its coals are better than those of any other field in America and, save Anthracite, are of every kind necessary to the arts and manufactures."

Professor Israel C. White, State Geologist of West Virginia, defines the boundary of the Appalachian Coal Field thus: "Beginning near the northern line of Pennsylvania, latitude 42, longitude 77, it extends southwestward through West Virginia, Southeastern Ohio, Eastern Kentucky, and Central Tennessee, ending in Western Alabama, latitude 33, longitude 88, nine hundred miles from its northeastern terminus." (West Virginia Geological Survey, Vol. II, p. 82.)

This Appalachian Coal Field includes not only bituminous coal beds, but nearly every rock formation from the new red sandstone, down to the granite. It comprehends the whole carboniferous group; the coal fields, the subjacent Devonian System, and beyond this the entire Silurian Series and Paleozoic rocks, and finally down to the primative group. In its extent is comprised all those rocks which by every geologist, is in any way associated with coal; that is to say: the sandstones, conglomerates, shales, the argillaceous slates, and occasionally the intercollated limestones which combine to make up the series usually called the Coal Measures or Carboniferous Strata.

THE AREA OF THE APPALACHIAN COAL-FIELD.

The total area of this Field as shown by the "Twenty-Second Annual Report of the United States Geological Survey," Part Three, pp. 12 and 13, is divided among the several States into which it extends, as follows:

West Virginia	17,280 square miles.
Pennsylvania	15,800 square miles.
Ohio	12,000 square miles.
Kentucky	10,300 square miles.
Tennessee	4,400 square miles.
Alabama	8,500 square miles.
Georgia	167 square miles.
Virginia (Southwest)	1,850 square miles.
Maryland	510 square miles.
Total area	70,807 square miles

Thus it is seen that the estimate of the extent of the Field made by Professor Rogers more than sixty years ago, was over seven thousand square miles short of what it is. Furthermore, it appears that of this area, West Virginia has 1,480 square miles more than Pennsylvania; 5,280 more than Ohio; 6,980 more than Kentucky; 12,880 more than Tennessee; 8,780 more than Alabama; 15,430 more than Southwest Virginia; and 16,770 more than Maryland.

By the authority just quoted, the following percentages are given as approximating the workable coal area of the States named. That is to say: West Virginia, 75 per cent.; Pennsylvania, 75 per cent.; Ohio, 70 per cent.; Kentucky, 70 per cent.; Tennessee, 47 per cent.; Alabama, 44 per cent.; Georgia, 14 per cent.; Virginia, 80 per cent.; and Maryland 80 per cent.

PROBABLE PRODUCTIVE AREA OF THESE STATES.

From the above estimates it appears that the *Productive Area* of the several States is as follows:

West Virginia	12,930 square miles.
Pennsylvania	11,850 square miles.
Ohio	8,400 square miles.
Kentucky	7,200 square miles.
Tennessee	2,068 square miles.
Alabama	3,740 square miles.

Georgia	24	square miles.
Virginia (Southwest)	1,480	square miles.
Maryland	408	square miles.
Total workable area of the Appalachian Coal Field	48,100	square miles.

Thus it is shown that of the Appalachian Coal Field, West Virginia has the largest workable area of any State into which it extends, her portion being 27 per cent. of the entire Field.

THE SHAPE OF THE APPALACHIAN COAL FIELD.

This Appalachian Coal Field is in the shape of a long trough, or canoe, the strata dipping from their eastward or southeastern escarpments toward the northwest; while from their escarpments on the northwest they dip toward the southeast, meeting in a common axis between the two escarpments or edges; the western and eastern margins of this basin, though nearly parallel about mid-way of its length, gradually approach each other as they extend toward the north and thus bending round, the former in Ohio the latter in Pennsylvania, at length, gradually coalesce and form the head or northern termination of the trough, at or near Wellsborough, Tioga county, in the last named State. A similar convergence of the margins takes place away to the southward, until they meet near Tuscaloosa, Alabama, and there form the southern end or terminus of the great trough, or basin, which, as we have said, resembles in shape a huge canoe. If a line be drawn between the two towns named it will be, as already stated, nine hundred miles in length, and will extend along the bottom or lowest part of the trough, and thus form the axis of the Appalachian Coal Field. Professor White, the State Geologist, writing of this line or axis, and its position in West Virginia, says: "The central, or deepest portion of the Appalachian basin, or geo-syncline, enters West Virginia from Green county, Pennsylvania, at the southwest corner of the latter State and crossing western Monongalia and eastern Wetzel counties, continues on through the State in a general southwest course across eastern Tyler, western Doddridge, central Ritchie, Wirt and Jackson, cutting eastern Mason, western Putnam and central Cabell to enter Kentucky from southern Wayne, ten miles above the mouth of Big Sandy. Where the axis of this great basin enters the State and on the southwest as far as Doddridge county, at least, the Pittsburg coal is buried to a depth of 1,300 to 1,500 feet under the highest summits, or say 100 to 150 feet above tide; but from Doddridge county to the south-

westward, the basin begins to rise and at the Kentucky line, the Pittsburg coal overlooks the Big Sandy waters from an elevation of eight hundred feet above tide, in the deepest part of the trough. * * * If we go up from this trough, or basin, in a northwest direction, we shall find this central line of the general basin of the strata rise to the northwest, at the rate of thirty to seventy-five feet to the mile, interrupted occasionally by the low anticlinal folds until the last of the Coal Measure rocks pass into the air from Southeastern Ohio. To the southeast from the same center or trough line the general basin is traversed by a series of folds which get steeper and higher (but not deeper) until we come to the eastern boundary of the West Virginia coal fields at the most eastern ridge of the Allegheny mountains."

Prof. W. B. Rogers, speaking of this says: "When descending from the eastern margin of the Appalachian Coal Fields the strata have a general inclination to the northwest, so that as we leave the Allegheny mountains, the rocks belonging to the formations below the coal, disappear, and the Coal Measures themselves, in their turn become buried as we approach the Ohio river," or rather the axis, or bottom, of the canoe-shaped trough of the Appalachian Field.

THE WEST VIRGINIA COAL FIELDS.

We have now seen that West Virginia is situated in the very heart of the great Appalachian Coal Field of which she has within her borders 17,280 square miles or more than one-fourth—nearly twenty-eight per cent.—of its entire area. This gives her 11,059,200 acres, or one-thirteenth of the total coal area of the United States; and 5,200 square miles more than the whole of that of Great Britain including England, Ireland, Scotland and Wales. Her coal area is found in the hills and mountains or beneath the water levels of every one of the fifty-five counties of the State except Monroe, Hardy, Pendleton, Hampshire, Morgan, Berkeley and Jefferson, all of which lie beyond the eastern escarpment of the Appalachian Field. And, in some of these at least, are coal deposits belonging to the Mauch Chunk Series.

When these measures were formed they were in unbroken strata and the land above them a level plain, but from breaks and fissures formed in the crust of the earth, or some other causes, the waters have scooped out the valleys and defiles, thus cutting the strata of rock and coal, leaving the veins or seams of coal cropping out or exposed in a thousand places from the hillsides above the present head of the streams. The coal veins now

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TOW BOAT SCENE ON THE GREAT KANAWHA RIVER—(See p. 234.)

exposed on the hill or mountain sides were once united, but have been cut asunder by the waters which have washed out the valleys in which they now flow. The veins above the present water levels are known as drift veins and mines therein are drift mines; those below the water levels are known as slope or shaft mines for only by slopes or shafts can they be reached or operated.

THE DISCOVERY AND EXPLORATION OF THE WEST VIRGINIA COAL FIELDS.

We shall now notice some interesting facts connected with the discovery and exploration of the coal fields within the State.

The first reference to the West Virginia coal fields which we have seen, is made in the year 1742 by John Peter Salley, who, accompanied by John Howard, his son Josiah Howard, and Charles St. Clair, left his home at the base of the Blue Ridge in Augusta county, on the 16th of March of that year, and thence proceeded to New River; covered the frame of a boat with buffalo skins and descended in it to Richmond Falls, where the course of the stream was so rough that the boat was abandoned; thence they traversed a southwest course eighty-five miles to another river, down which they proceeded and because "in those mountains we found great plenty of coals, . . . we named it Coal river;" and as Coal river it continues to be known to this day.

Christopher Gist, the agent and explorer of the Ohio Land Company, when exploring the region between the Monongahela and Great Kanawha rivers, spent the night of March 1, 1751, at the mouth of Slate creek, now in Wood county, and there saw a "little branch which was full of coal." This little Branch was probably what is now known as the Middle Fork of Tygart's creek in that vicinity.

In 1770, George Washington, when on his journey to the Ohio saw a "Cole hill on fire" near the site of the present village of West Columbia in Mason county. For a hundred years, people who have lived in that vicinity have known of the "burnt hill" and of Burnt Hill Branch that flows at its base.

In the year 1800, Philip Null discovered the since famous Pittsburg Coal Seam at Pocatalico river, now in Putnam county, but mining there was not thought of for more than half a century.

F. A. Michaux, M. D., the celebrated French botanist, travelled from West Liberty in Ohio county, to Wheeling, July 16, 1802. He says: "A mile and a half from West Liberty town, the road passed through a narrow

valley four miles in length, the sides of which in some places from twenty-five to thirty feet in height, *exhibit strata of coal from five to six feet in thickness,* and lying in a horizontal direction. This substance is extremely common in this part of Virginia." (See his "Travels to the Westward of the Allegheny Mountains.")

In the years which ensued, travellers and explorers saw the "stone-coal" croppings in the hills and mountain sides, but little was known of the deposits till 1835, when Doctor Samuel P. Hildreth, of Marietta, Ohio, published in Siliman's "Journal of Science," the first written account of the Appalachian Coal Field. Dr. Hildreth was the first individual explorer of coal in the Upper Ohio Valley and his paper contained many details of the strata of the western border of Virginia—now West Virginia. It presented statistics and other information relative to mining operations and was illustrated by many wood cuts of fossil remains and local sections, and contained a geological map of the Upper Ohio Valley and Western Virginia—the first ever published.

The results of the publication of Doctor Hildreth's paper were immediate and vast; the people of Ohio and Virginia became interested and in the next year both States began the work of investigating the extent of their coal fields. In the former Professor W. W. Mather was placed in charge of the work with Doctor Hildreth as his assistant; while the latter sent her most expert geologist, Professor William Barton Rogers, over the Alleghenies to make exploration. The same year—1836—this State printed his "Report of the Geological Reconnoissance" into the Appalachian—West Virginia—Field, and then provided that a geological survey of Virginia should be made under his direction. He proceeded to Pittsburg, whence he followed or traced his "Upper Coal Series" southward to Clarksburg, in the latitude of Marietta, and thus the coal along the Monongahela came to be known as the "Pittsburg Seam," but was long spoken of as the "Main Coal of Northern Virginia." Later, Professor Rogers followed this seam across the Little and Great Kanawha rivers, and found traces of it as far south, as the Big Sandy river. In his report for the year 1837, he said: "At Wheeling and for fourteen miles down the Ohio, the cliff or bank of the river presents an uninterrupted bed of highly bituminous coal about ten feet thick. This seam with some smaller ones constitutes the "Upper Coal Series," the same as that extending throughout the valley of the Monongahela." He traversed almost the entire area of what is now West Virginia, and visited nearly or quite all of the "coal banks" as the

openings were then called. In 1840, he had found in the coal measures five workable and two non-workable seams, the whole aggregating twenty-five feet in thickness. A year later he had examined five veins of bituminous and two of cannel coal, all above the water levels of the Great Kanawha Valley; and at Brantz's Mines, now in Mineral county, overlooking the Potomac Valley, were the same number of bituminous veins for Northern Virginia. But now an unfortunate event occurred. In 1843, the Virginia Assembly discontinued the Geological Survey of the State, abolished the office of Chief Engineer and the work was never completed. This terminated the work of Professor Rogers among the West Virginia coal fields. But he had made them known; and others came, saw for themselves, and made report thereon. One of these, Richard Cowling Taylor, an eminent scientist of England, and known as the "Father of British Geology," came to Pennsylvania in 1848, and penetrated the West Virginia coal fields, that he might see them for himself. In his "Statistics of Coal," he corroborated all that Professor Rogers had said, made further explanation, and then observed that: "It would seem, therefore, that these thirteen coal beds, having an aggregate thickness of forty feet, four seams comprising eight yards of workable coal, through nearly the whole length of the State, may be relied upon as the productive power of Western Virginia."—now West Virginia. Speaking further of the Appalachian Coal Field, he referred to it as "that magnificent, central, elevated region within whose borders slumber in undisturbed darkness, untold millions of acres of coal."

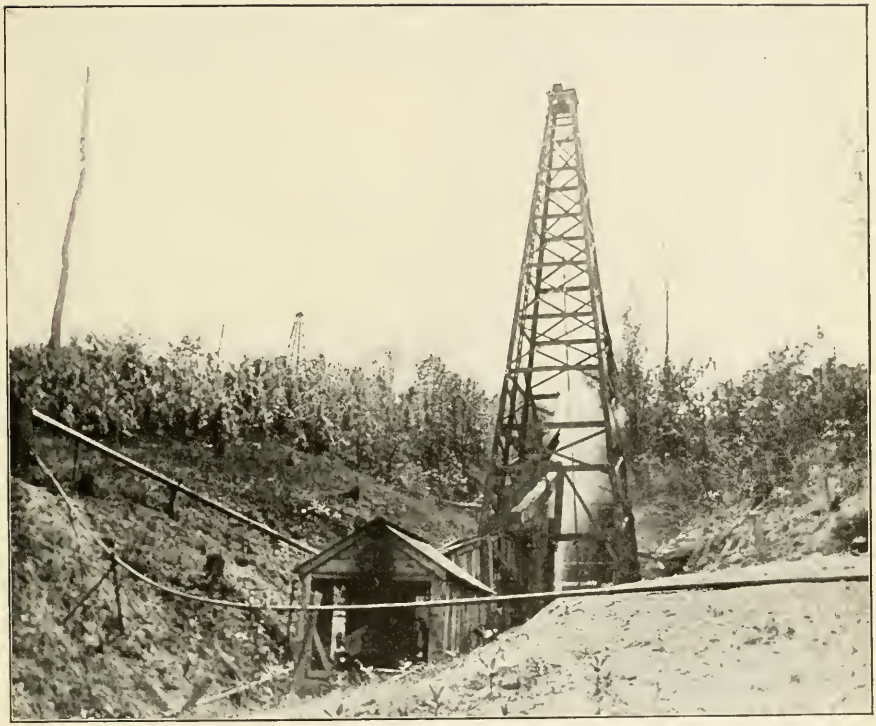
Professor Taylor was followed into West Virginia by another eminent geologist and mining engineer, Professor Harries S. Daddow, of Pottsville, Pennsylvania, who in his exhaustive work "Coal, Iron and Oil," published in 1866, pages 338-342, said: "West Virginia contains a larger proportion of the Allegheny Coal Field than any other of the States enumerated through which it extends. Over sixteen thousand square miles of this great coal field lie in West Virginia * * * * The best and most available portion of it lies in that State, and the greater portion of its vast area is naturally open to development, by the numerous streams which traverse its face from east to west. The great Kanawha river running off at right angles from the Ohio, traverses the richest portion of the great Allegheny Coal Field, cutting the coal measures of this region—two thousand feet thick—to their base and developing their exhaustless mineral resources in the most available manner for practical production. But after performing this most acceptable service to the future prosperity of the West, it renders the benefits conferred still more valuable, by dividing the otherwise impassable

Appalachian Chain at right angles and taking the nearest course to the waters of the East, thus opening the most available route (for a railroad) from the great rivers of the West to the seaports of the East, and connecting the minerals of the older geological formation—the iron and lead (in Southwest Virginia) with the coal of the trans-Allegheny Field. * * * The coals of the Great Kanawha Region, as we shall specially describe, are of various constituencies and are adaptable to all the requirements of the trades and manufactures. The hard and the coking, with the fat and gaseous bituminous, the variable splint, and the rich and oily cannel are all found in the same mountains, and are all accessible alike to the miner and to navigation, through the agencies of the eroding waters, which have exposed these coals in a thousand places. * * * * "This is," continues Daddow, "the natural *mining* and *manufacturing* center of the Great Allegheny Coal Field. * * * * Coal River, Elk river, and the Gauley, diverge from the Great Kanawha and spread their branches over one of the richest and most magnificent coal regions of the world. * * * * The coals of this region, generally, are better, purer, and more available for all the requirements of trade and manufacture than the coals of the Allegheny Coal Field. The seams of coal are more numerous and their thickness greater than any other portion of this Coal Field; it can be mined cheaper and with more economy, generally, under the same rates of labor, than in any other in this country without exception." Such were the West Virginia Coal Fields as seen by this eminent geologist.

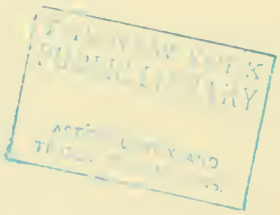
Then others did much to make known the existence and extent of our coal deposits. Among the most active of these were Henry G. Davis, William M. Peyton, Thomas L. Broun and J. H. Dis Debar, the latter the State Commissioner of Imigration. Then came the Centennial Exposition at Philadelphia in 1876, and the Columbian Exposition at Chicago, in 1893, at both of which West Virginia surprised the world with the exhibit of her natural resources; and the thousands of dollars she thus expended resulted in the investment of millions within her borders.

THE EARLY DEVELOPMENT OF THE WEST VIRGINIA COAL FIELDS.

The development of the coal business of the State has been very remarkable, and it, therefore, presents a deeply interesting narrative. At the beginning of the last century, the only use made of West Virginia coal was by the blacksmiths in the cross-roads shops, and by the frontier settlers whose cabin home stood near the outcrop or exposure of a seam from which he "dug" out the "lumps" and on cold winter nights placed them on the



AN OIL WELL IN RITCHIE COUNTY—Production, 1250 barrels per day—(See p. 246.)



logs with which he had filled his spacious "fire-place," where they thus increased both light and heat. John Pinkerton, the greatest geographer of his time, in his work published in 1804, made but a single reference to the great Appalachian Coal Field, and this he did by saying: "What is called stone-coal is found in the country south of the Ohio."

Prior to the year 1810, all the coal used in Wheeling was brought thither in periogues and canoes from Pipe creek on the north side of the Ohio, and that was very little comparatively speaking, as its price precluded its adoption for any other use than that of blacksmithing purposes. But about this time, Conrad Cotts, an experienced miner, came to Wheeling from Pittsburg, and very carefully prospecting the surrounding hills, happily struck a vein of "Black Diamonds." He speedily opened a mine, and in the winter of that year, black columns of curling smoke, for the first time ascended above the chimney-tops of a hundred houses in the embryo city. Cotts operated the mine for five years, when it caved in and was not opened again. But in this time, coal had been discovered at other points and the fact established that Wheeling was abundantly blessed with a coal supply to meet her every emergency for many years to come, and thus was assured the prosperous future which has characterized the chief city of the State.

In 1809, Robert Fulton and Chancellor Livingston, of New York, sent Nicholas Roosevelt to ascertain whether steam navigation was practicable on the Western waters, and, if so, the three would speedily build a steamboat for use thereon. He arrived at Pittsburg and in a little flatboat began the descent of the Ohio. Before proceeding far he became so certain of the navigable character of the river, "that," says the record, "finding coal on the banks of the Ohio, he purchased land and opened mines of that mineral, and so confident was he of the success of his steam project, that he caused supplies of the fuel to be heaped up on the shore in anticipation of the wants of a steamboat, whose keel was yet to be laid." This boat, the "New Orleans," the first west of the mountains, was built within the present limits of Allegheny City, Pennsylvania, and descending the Ohio in 1811, burned in her furnace the coal which Roosevelt had provided for her two years before. Where he found and stored this fuel cannot now be known save that it was "on the Ohio."

Coal was not discovered in the upper Great Kanawha Valley until 1817, notwithstanding it is in the very heart of the vastest coal field of the world. Here, too, extending for ten miles on both sides of the river above Charleston, were the Kanawha Salines, at that time the most productive salt region in America. Wood had been the only fuel and the bottoms and

neighboring hills had been denuded of their forests for this purpose. Some time before 1817, John P. Turner, a New Yorker, who had resided in the mining region about Pittsburg, removed to the Kanawha Valley and engaged in supplying wood for the furnaces. But in the last named year he opened a coal mine at the mouth of Burning Spring run, two miles above Malden, and entered into a contract with one of the salt companies to supply coal as fuel. All others speedily began its use and the production of salt was thus greatly increased.

In the year 1818, a merchant of Cincinnati made an estimate for a New England friend, of the quantity of coal used that year on the Ohio, between the mouth of the Great Kanawha and the Falls of the Ohio. This was as follows: Maysville used or sold 30,000 bushels; Cincinnati burned in her steam mills, iron foundry, and factories 44,000 bushels; the Dean Steam Saw-mill, one hundred miles below Cincinnati, consumed 12,000; and Louisville used or sold 30,000—a total of 116,000 bushels for the year's coal business between the two points named—a quantity which would not equal one-fifth now taken down the Ohio river by a Pittsburg tow-boat, on a single voyage.

The only reference made to the Appalachian Coal Field by Jedediah Morse, in his great two-volume work on geography, published in 1819, was, when speaking of Virginia, he said: "Coal is very abundant west of the mountains."

In 1819, David Bradshaw, opened a mine across the Ohio river from Mason City, in Mason county, and that year sent twelve hundred bushels of coal to market at Louisville, Kentucky, where it was sold at twenty-five cents per bushel, chiefly for smithing purposes.

In 1832, Samuel Pomeroy who had come from New England, and was the founder of the town of Pomeroy, Ohio, put one thousand bushels of coal in boxes, at Bradshaw's mine, mentioned above, and shipped them to New Orleans, to be sent from there to Boston, but the flat-boat on which they were loaded sank before getting out of the Ohio river, and the enterprise was never again renewed.

In 1832, George Birthistle began shipping coal taken from the outcrops on the front of the river hill about midway between the towns of Clifton and West Columbia in Mason county, West Virginia. It was hauled from the mine to the river on a sled drawn by a yoke of oxen; then loaded on rafts of logs and floated down the Ohio to market.

From 1836 to 1840 Professor Rogers visited nearly or quite all of the mines then open in West Virginia and made analyses of the coals at Clarks-

burg, in Harrison county; at Pruntytown, now in Taylor county; at Morgantown, in Monongalia county; on Guyandotte river and Trace Fork, in Logan county; Big and Little Sewell mountains in Fayette county; Brantzburg and Oliver's Tract now in Mineral county; Forks of Stoney river; Abraham's Creek, and Michael's Bank, now in Grant county; Foman Basin, Kingwood, Prices and Hagan's "Banks," in Preston county; Stockton's, Ruffner's two "Banks," on Campbell's creek and Hughes' creek, D. R. Ruffner's on Grand creek, and Turner's Bank in Kanawha county. The last named, as will be remembered, was the pioneer mine of the Great Kanawha Valley. In his report for 1840, Professor Rogers states that there were nearly ninety salt furnaces along the Great Kanawha river, making annually a million bushels of salt and consuming 5,000,000 bushels, or 200,000 tons of coal. The total products of all mines in West Virginia in that year was 298,694 tons of twenty-eight bushels each, or nine acres excavated from the upper groups of workable beds. To mine this quantity 995 miners and workmen were employed and the capital invested in the business was estimated at $1,301,855. Of the total product nearly all that was not burned by the salt furnaces in the Great Kanawha Valley, was consumed by the factories and for house fuel in Wheeling.

In 1843, the Baltimore & Ohio Railroad was completed to Piedmont—"the foot of the mountain"—now in Mineral county, from which at this time small quantities of coal began to be shipped to Baltimore and thence conveyed by water to Philadelphia, where it was sold at from twenty to twenty-two cents per bushel.

The first coal mines in Mason county, on the Ohio river were opened by Griffith B. Thomas and James Foley at West Columbia in 1847. After making some small shipments by the river, they sold the property to Burnett & Woodson, of Cincinnati, who operated the mines until 1852, when they were sold to the West Columbia Mining and Manufacturing Company, the capital stock of which was a half million dollars.

In 1853, a mine known as "Clark's Bank" was opened at Clifton in Mason county and operated until 1858, the proprietors being Thomas Clark, Thomas Stewart, Thomas Potts and Henry Potts—all English miners. In the latter year they sold the property to Thomas Surtees and Francis Graig, who leased it to Philip Kelly, by whom the mine was worked until 1860. In 1854 George W. Moredock and M. A. Healy, of Hartford, Connecticut, began mining operations at Hartford City, in Mason county, and these and Kelly's mines were worked throughout the war.

As early as 1854, corporations began to be formed for the purpose of

developing the Western Virginia—now West Virginia—Coal Fields, and from that time until 1860, fully twenty-five of these were created under the laws of Virginia. West Virginians led in the organizations which were formed as Professor Rogers said "not for the purpose of working stock but of working coal." These enterprising men hoped to enlist foreign capital in the work, but they met with little success in this, and war for a time put an end to all efforts in this direction.

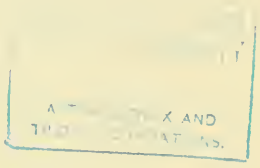
But one corporation for mining coal was formed under the Reorganized Government of Virginia. This was the Pittsburg & Steubenville Coal Company, formed for the purpose of mining coal in Hancock county.

In 1865 the Averill Coal Company was organized and began operations at the mouth of Pocatalico river. Elisha Riggs, Leonard Jerome and William Woods Averill were stockholders. In 1866 the Peytona Cannel Coal Company was chartered with Peytona, on Coal river in Boone county, as the scene of its operations. The Wayne county Coal Company was incorporated, and H. G. Daniels & Company purchased the old Kelly mines in Mason county, and began mining on an extensive scale. In 1869 the Camden mines, within three miles of the last mentioned, were opened. In 1870 there were two "Coal Banks" in operation in Monongalia county, which employed three miners, had a capital of $1,200, paid $700 in wages, used $200 worth of raw material, and produced twenty-four hundred tons of coal, which sold for $2,400. In that year it was shown by the census of the United States that the coal production of the entire State of West Virginia was 608,878 tons.

In 1873 John Nuttall, an Englishman, came from Pennsylvania, and began operations in the uppermost seam of the Pottsville Series, in Sewell mountain on New River. In 1875 nine miners in the Great Kanawha Valley produced 301,000 tons of coal, of which 101,000 were burned at the salt furnaces, and 200,000 shipped in barges down the river to market. Thence onward the business increased and in the year 1880, operations were carried on extensively in many localities; among them, at the Virginia mines in Mineral county; mines near Morgantown, in Monongalia county; the Gaston and American mines in Marion county; the Nuttall, Sewell, and Quinnimont mines in Fayette county; the Flemmington, Despard, Tyreonnel and Murphy's Run mines in Harrison county; the Wheeling mines in Ohio county; the Raymond mines in Putnam county; and the West Columbia, Clifton, Mason City, Hartford City, and New Haven mines in Mason county.

To Major Jed Hotchkiss, of Staunton, Virginia, more than to any other man is due the credit of making known to the world the immense area of

SCENE IN A WEST VIRGINIA OIL FIELD—(See p. 246.)



the Flat-Top-Pocahontas Coal Field. As a soldier on General Lee's staff, in the Confederate army, he first observed the treasures of coal that lay hidden along the eastern base of Flat-Top mountain, and, although it was in a series practically devoid of merchantable coal in the Pennsylvania Region, yet his quick perception and keen geological faculty, convinced him that here, in what was then a wilderness region, lay a great wealth of the best fuel in America. He was the leading spirit in organizing the Flat-Top Land Association, which led to the building of the Norfolk & Western Railroad into the field which has now become one of the greatest coal and coke producing regions in America.

THE PRESENT STATUS OF THE COAL BUSINESS IN WEST VIRGINIA—THE RECORD OF A YEAR.

Notwithstanding the long years of exploration and development, the mining industry is new—still in its infancy. Many pioneer miners still live and are at work who have seen it grow and expand from a very small beginning to its present proportions.

Previously to the creation of the office of Chief Mine Inspector with his assistants, five in number,—February 25, 1890—there was little or no attempt made to collect the statistics of the coal production of the State. But now this is done fully and an array of figures thus presented which conveys to the mind a comprehensive and intelligent view of this, the greatest commercial interest of the State. Some of these are now to be presented, taken from the Biennial Report of Honorable James W. Paul, Chief Mine Inspector, made to the Governor of the State, January 1, 1904.

A STATISTICAL VIEW.

For the year covered by the said Report, it is shown that there was mined in the State 22,913,698 long tons of coal. This was distributed as follows:

I. In the Potomac District, composed of the counties of Mineral, Tucker and Grant, 1,622,068 tons.

II. In the Monongahela District, composed of the counties of Preston, Taylor, Barbour, Harrison, Marion and Randolph, 6,679,000 tons.

III. In the Wheeling District, composed of the counties of Marshall, Ohio, Brooke and Hancock, 503,925 tons.

IV. In the Kanawha-New River District, composed of the counties of Mason, Putnam, Lincoln, Raleigh, Fayette and Nicholas, 6,540,325 tons.

V. In the Norfolk and Western District, composed of the counties of McDowell, Mercer and Mingo, 7,388,380 tons.

VI. In the small mines elsewhere in the State and not classified, 180,000 tons.

Of this grand total of 22,913,698 tons, 266,691 tons were consumed in operating the mines; 210,373 tons went to supply fuel to tenants, and to the local trade; 3,774,674 tons were used in coke ovens; and 18,663,060 tons were shipped to market from the mines. That from the Potomac, Monongahela and Wheeling Districts was hauled by the Baltimore & Ohio Railroad; that of the Kanawha-New River District shipped over the Chesapeake & Ohio Railway; and that of the Norfolk and Western District sent over the Norfolk & Western Railroad.

Of the grand total shipped to market—19,497,311 tons—the Baltimore & Ohio Railroad hauled 7,142,326 tons; the West Virginia Central & Pittsburg Railroad, 1,671,240 tons; the Kanawha & Michigan Railroad, 1,057,987 tons; the Chesapeake & Ohio Railway, 5,311,912 tons; and the Norfolk & Western Railroad 5,367,855 tons. From the Kanawha-New River District 836,492 tons were shipped to market by river, and this should be deducted from the carriage over the Chesapeake & Ohio Railway.

There were 795 mining machines in operation and these mined 6,312,-894 long tons, nearly as much as the entire production of the State twelve years ago, and 27 1-2 per cent. of total output for the present year.

There were 35,601 men employed in and outside the mines in the production of coal; of this number 16,287 are pick miners; 6,531 machine miners and runners; 7,632 are inside laborers; and 5,151 outside mine laborers. The largest increase in the employees was in the machine miners, and the greatest decrease in the pick miners.

The mines were in operation an average of 201 days.

In the mining of coal 3,022.3 acres were excavated, a decrease of 129 acres over the preceding year. At this rate of mining it will require 3,433 years to excavate the 11,059,200 acres yet remaining of the 17,280 square miles of coal fields in the State. But 18,349 acres have been excavated in the last seven years.

The average earnings of pick miners per year was $499.00. He received 49 1-2 cents per ton for run-of mine room coal; 52 3-5 cents for heading or entry coal.

The average product was 1,066 tons for each miner.

The pick miners produced in 1903, 16,420,804 tons; machine miners, 6,312,894 tons; estimated for small mines 180,000 tons; the total mined was 22,913,698 tons.

147 men were killed inside and 12 on the outside, or one out of each 224 employed.

One man was killed for the mining of each 144,111 tons of coal. One man was injured in the mining of each 102,752 tons of coal. 52 wives were left widows and 94 children left fatherless.

STATE MINE INSPECTION.

West Virginia has a rigid mine inspection law. By an act of the Legislature passed February 13, 1890, the office of the State Mine Inspector was created, the object being "to secure the ventilation and drainage of the mines and the protection of the lives of persons employed therein." The State was then divided into two Districts and the Governor was authorized to appoint an Inspector for each. As the mining industry has increased, the law has been amended until now we have a Chief Mine Inspector, with his office at the seat of government, and five assistants, one of whom is constantly in each of the five Inspection Districts into which the State is divided. These are as follows:

First District:—This is composed of the counties of Braxton, *Brooke,** Doddridge, *Harrison, Hancock, Lewis, Marion, Marshall, Monongalia, Ohio,* Pleasants, Ritchie, Tyler, Wetzel, Webster and Upshur.

Second District:—Composed of the counties of Cabell, Calhoun, *Clay, Gilmer,* Jackson, *Kanawha, Lincoln, Mason, Putnam,* Roane, Wirt and Wood.

Third District:—Composed of the counties of *Fayette,* Greenbrier, Monroe, *Nicholas, Pocahontas, Raleigh* and Summers.

Fourth District:—Composed of the counties of Boone, *Logan, Mercer, Mingo, McDowell, Wayne* and Wyoming.

Fifth District:—Composed of the counties of *Barbour,* Berkeley, *Grant,* Hardy, Hampshire, Jefferson, *Mineral,* Morgan, Pendleton, *Preston, Randolph, Taylor,* and *Tucker.*

The five district inspectors made a total of 1197 inspections during the year and investigated the majority of all fatal accidents. Considering that there are 530 mines which require a personal examination, necessitating many miles of travel to reach the various mines, the above record of inspections and special investigations made speak well for the diligence of the Inspectors.

*The names of counties printed in italics are those in which operating mines are located.

A REVIEW OF THE COAL INDUSTRY IN WEST VIRGINIA FOR 1903, BY JAMES W. PAUL, CHIEF MINE INSPECTOR OF THE STATE.

The following items of interest relating to the coal business, in the State have been kindly supplied by Honorable James W. Paul, the chief Mine Inspector of West Virginia.

"In attempting a review of the coal industry of West Virginia for the year 1903, it is difficult to point out any one section as being the most active, since several localities lay claim to having led the procession in the industrial activity. The production has now reached a tonnage that taxes the lines of transportation in handling it, but the past year has experienced many improvements in the railroad facilities and with projected lines and those building the railroads will, in the future, be able to handle a much greater tonnage.

"The production of coal for the fiscal year 1902 was 23,359,083 long tons. The production for the year ending December 31, 1903, will safely be 24,002,255 long tons.

The matter of new developments the present year exceeds all previous single years. In the northern part of the State along the line of the Baltimore & Ohio Railroad, a number of new mines have begun shipping coal. In the Roaring Creek field many substantial and expensive improvements have been made and the tonnage of coal much increased. The production along the line of the West Virginia Central Railroad has kept pace with the activity, and the development in Preston and Monongalia counties bids fair to make a large showing in the near future. In the Pan-Handle counties around and contiguous to Wheeling, much new development is under way and it will only be a matter of a few years until Wheeling will become an important center in the shipment of coal. The greatest development in the coal business during the year has been within Kanawha county, notably on Cabin creek, Paint creek, and Kelly's creek. On these creeks, tributary to the Great Kanawha river, there have been opened no less than forty-five mines. On Gauley river there has been some coal development and railroad construction, which, when completed, will add considerably to the coal tonnage.

Eleven companies produced 8,528,154 tons or 30 per cent. of the State's total tonnage. There are seven other companies which produced over 200,000 tons each and forty four each of which produced over 100,000 tons but less than 200,000 tons.

The selling price of coal per ton of 2,240 lbs. for the year was $1.32 2-3 against 92 7-8 cents for the previous year, being a gain of 39.8 cents.

Coke sold for $2.66 1-4 per ton of 2,000 lbs. against $1.84 for the previous year, a gain of 82 1-4 cents.

VIEW AT WHITE SULPHUR SPRINGS—Greenbrier County—(See p. 255.)

VALUE OF PRODUCT FOR THE YEAR.

The gross value of all coal produced was $30,398,839.34 and of coke produced $6,611,988.60.

The gross total revenue obtained summarizes as follows:

Total value of all coal produced		$30,398,839.34
Less value of coal used for steam at mines	$353,810.06	
Less value of coal used in coke ovens	5,007,734.16	5,361,544.22
Total value of coal sold		$25,037,295.12
Total value of coke produced		6,611,988.60
Total gross value of product placed on market		$31,649,283.72

GENERAL SUMMARY.

The foregoing review of the District Inspectors' reports shows that the operators throughout the State have been exceptionally active in making many improvements for the betterment of the condition of the mines, especially pertaining to ventilation and it is a pleasure to know that the operators are showing a disposition to discard furnaces for ventilating purposes.

Having been in a position to know the condition of the mines in the State for a number of years, I feel safe in saying that at no previous time have the general conditions been as good as they now are with respect to ventilation, drainage and general safety.

There is a growing tendency throughout the State to provide better houses for the employees and in some sections these are provided with houses having many conveniences such as electric lights, running water and bath rooms.

"This State ranks third in the production of coal. Pennsylvania leads in this with 98,947,117 tons bituminous, and 36,911,554 tons anthracite to her credit. Illinois is second with 26,804,732 tons. West Virginia comes third with 22,913,698 tons, followed closely by Ohio with 21,365,416 tons in 1902. These figures are taken from the most recently published reports. The present operating mines in this State, with favorable conditions, are capable of producing forty-five million tons of coal in one year, in which event, West Virginia would become second to the State of Pennsylvania.

"The mining labor within this State has been receiving the highest wages paid in the State since the Civil War and all classes of labor have been

scarce during the year. There are employed within the mines, 16,287 pick miners; 6,531 machine men; 7,632 laborers, a total of 30,450 inside. On the outside of the mines there are employed 3,851 coke workers and 5,151 laborers, a total outside of 9,002, which, with the inside employees, aggregates 39,452.

Prior to the year 1890, practically no coal was mined in this State by means of machines. The machines now number 795 and mine 6,312,894 tons, being 27 1-3 per cent. of the entire production.

The United States Coal & Coke Company reported to be a subsidiary company of the United States Steel Corporation, has opened six mines, which are in operation; several others are being opened. This company has the distinction of having installed the largest single electric power plant of any coal operation in the world.

In Mercer county several mining plants have been developed on Crane creek and as many as a dozen leases have been made on Wide Mouth, which await the completion of a branch line to begin development. At the Crozer plant in McDowell county, has been erected the most elaborate and costly steel tipple in the State. Fayette county has added several large mines to its list and their equipment is a high standard of excellence.

Many improvements have been made at the mines throughout the State. Mines which for many years have relied upon furnaces for ventilation have been equipped with fans of modern design. Fans of twenty feet diameter have been thrown out to make way for fans having greater capacity."

THE WEST VIRGINIA COAL INDUSTRY OF THE FUTURE.

What shall be said of this? Who can now tell of this, or estimate its immensity! For forty years West Virginians have been endeavoring to inform the world of the vastness of her natural resources, and only now have her mines been opened and their products placed upon the markets of the land and the ocean.

The seams above the river beds are easily accessible everywhere. Down the incline from the Allegheny Highland to the Ohio Valley, northwestern flowing waters have in ages past, cut out the defiles, valleys, gorges and canons that now separate the Cumberland Plateau into a thousand hills, ridges and mountains, the slopes and sides of which have been escarped and washed down by erosion of the elements in later periods, thus leaving the coal seams exposed and rendering them of easy access to the miner and operator. Below these, at the deeper levels, other seams lie in undisturbed repose. Speaking of these, William Seymour Edwards, in his "Coals and

Cokes of West Virginia," page 8, says: "As yet the great abundance of coal in hillside and mountain above the water level of adjacent streams, has prevented practical consideration of what coal beds may lie at the deeper levels, and it is only from the information gained through the many oil wells, drilled and now drilling in West Virginia, that we have accurate information of the extensive deposits of coal that lie deep under the surface and are now, and for many years to come, safely locked up in trust for the peoples of this republic, yet unborn."

Such it is, as we follow the Report of the State Geologist, far down through stratum upon stratum, and series upon series, from the Potomac to the Ohio, and from the Monongahela to the Big Sandy. In the language of the Report, the value of some of these is only to be known "in the far distant future."

Let us see. Allowing to the State 17,280 square miles of coal fields gives her 11,059,200 acres, of which, it is believed, not 50,000 have, as yet been excavated. In the last year reported, when 23,259,083 tons of coal were mined, there was excavated but 3,353.3 acres, and at this rate long centuries must pass away before the coals of the State can be mined. Here, then, is an enormous aggregate of fuel of whose ultimate value no present estimate can be made for no array of figures or words can adequately portray it. It is beyond the scope of human vision and at this time, the results to come from these millions of acres of coal—the industrial facilities, the wealth, and power, and influence, at home and abroad, which they must inevitably confer upon the future inhabitants of the State, yea, upon the entire country—cannot now be told. Yes, West Virginia is today, the richest State in the Union in this great element of civilization, wealth, and prosperity, and her people invite the capitalist, the artizan, and the laborer to come and under her liberal and enlightened legislation, share these advantages and opportunities with her.

THE COKE INDUSTRY IN WEST VIRGINIA.

The manufacture of Coke is inseparably connected with the Coal industry, and is therefore treated in connection with it. The first Coke produced in the State was made about 1843 from the Upper Freeport Coal at the old Green Spring iron furnace on the east bank of Cheat river at Ice's Ferry in Preston county. It was burned in heaps covered with earth, after the manner of making charcoal, in connection with which it was used in the manufacture of iron. In 1853 Coke was made in the same manner for the iron furnaces in Monongalia county. The first brick oven for the burning of

coke was erected by William Lazier at Durbannah Foundry in that county, about the same time. In 1878 George M. Reay built the first fire-stone coke oven in the State, at the same place. Henceforth there was a speedy growth and the development of the Coke Industry will appear when it is seen that in 1880 there were but eleven embryo operations; in 1890 but forty-five, and in 1900 one hundred and seven. In 1883 there were 190,889 tons produced in the State; in 1891, this had increased to 1,208,418 tons; and in 1902 had grown to 2,249,744 tons.

West Virginia is divided into five coking districts known respectively as the Kanawha, the New River, the Flat Top, the Upper Monongahela, and the Upper Potomac. The first two are compact and contiguous. They include the ovens along the Chesapeake & Ohio Railway from Quinnimont to the western limit of the Coal Field. The Flat Top District includes the ovens in what is known as the Pocahontas District, including those in Mercer and McDowell counties along the line of the Norfolk & Western Railroad and its branches. The Upper Monongahela, and the Upper Potomac Districts embrace all the ovens along the Baltimore & Ohio Railroad and its branches in the northern part of the State about the head waters of the two rivers from which they derive their names.

The Flat Top District of West Virginia supplies much of the coke used in the blast furnaces and rolling mills of Illinois. The leading coke consuming States, in the manufacture of iron and steel, are Pennsylvania, Ohio and Illinois, and in them, West Virginia coke finds its chief market.

A comprehensive view of the extent of the coke industry may be obtained from the very complete Biennial Report of Honorable James W. Paul, to the last session of the Legislature, which convened January 14, 1903. From this it appears that the number of plants were 107; number of men employed 3,404; number of ovens in use 7,659; total tons of coal used in ovens, 3,772,855; total tons of coke produced, 2,249,744 tons. Of the fifty-five counties of the State, eleven produce coke, as is seen by the following table:

VIEWS AT RED SULPHUR SPRINGS—Monroe County—(See p. 257.)

TABLE SHOWING COKE PRODUCTION BY COUNTIES WITH RANK OF EACH.

(Figures expressed in tons of 2,000 pounds.)

Rank.	COUNTIES.	No. Plants.	No. Men Employed.	No. Ovens in use.	Total tons of Coal used in ovens.	Total tons of Coke produced.
1	McDowell	31	1,695	3,236	1,494,984	929,433
2	Fayette	35	801	2,313	887,536	515,398
3	Tucker	5	275	540	469,861	279,680
4	Marion	10	216	565	393,243	210,451
5	Mercer	8	279	573	294,199	175,083
6	Randolph	2	34	50	56,524	38,845
7	Kanawha	2	28	77	52,239	29,722
8	Monongalia	2	21	54	38,969	19,948
9	Preston	3	20	78	31,806	18,930
10	Harrison	6	26	87	30,281	16,572
11	Barbour	1	9	36	22,513	15,682
	Totals	107	3,404	7,659*	3,772,855	2,249,744

* Ovens in Taylor and Raleigh counties not in use this year.

Of the coke sent to market last year, the Baltimore & Ohio Railroad hauled 523,550 tons; the West Virginia Central & Pittsburg Railroad, 306,848 tons; the Kanawha & Michigan Railroad, 57,799 tons; the Chesapeake & Ohio Railroad, 471,947 tons; the Norfolk & Western Railroad, 1,123,696 tons.

The production of coke for the year 1903 in tons of 2,000 lbs. was 2,483,376, an increase over the previous year of 233,632 tons. In eight counties there was an increase of 323,389 and in three counties a decrease of 89,757 tons.

There are 12,694 coke ovens completed of which 9,091 were operated during the year and 3,605 were idle. There is in process of construction 1,646 new ovens.

THE PETROLEUM AND GAS FIELDS OF WEST VIRGINIA.

PETROLEUM.

Petroleum was first known, in the United States, on the shores of Seneca Lake, in the State of New York, where small quantities were collected, and, to some extent, used as a medicine under the name of "Seneca Oil," the Indians and first white settlers believing it efficacious as a liniment in rheumatism, sprains and bruises.

First Known in West Virginia.—The boring, or drilling, of salt wells began on the Great Kanawha river above Charleston, in 1807, and was continued for more than fifty years. In nearly all of these wells more or less petroleum was found—the first discovered in West Virginia—and in many of the deeper wells there was a considerable flow, said by some authorities to have been as much as several barrels daily. It was permitted to flow over from the salt cisterns on the river, where, from its specific gravity, it spread over a large surface, and by its beautiful iridescent hues, and not very savory odor, could be traced for many miles down stream. It was from this that the river received the familiar nickname of "Old Greasy," by which it was known for many years to Kanawha boatmen and others.

At that time this oil not only had no value, but was considered a great nuisance, and every effort was made to tube it out and get rid of it. Doctor Samuel P. Hildreth, of Marietta, Ohio, in an article in Siliman's "Journal of Science," for February, 1826, in speaking of the uses of the oil, says: "Nevertheless, the Petroleum affords considerable profit and is beginning to be in demand for lamps in workshops and manufactories. It affords a clear, brisk light when burned this way."

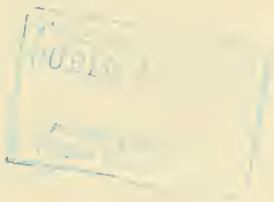
The first white men who entered the Little Kanawha Valley, among them Jesse Hughes and William Lowther, found Petroleum floating on the waters at the mouth of Hughes' river. Upon investigation, they ascertained that it came up through the sands along the right bank of that stream about six miles from its mouth, and now in Wirt county. They recognized it as the then "Seneca Oil," to which both Red and white men ascribed rare medicinal properties, and soon the place of its presence was known far and wide. Holes or pits were dug in the sand and when the oil had accumulated therein, it was dipped out and sold to purchasers.

Doctor Hildreth, before mentioned, visited the mouth of Hughes' river in 1836, and the same year, stated that "from fifty to one hundred barrels were thus collected and sold during the year." Richard C. Taylor, the English geologist, some years later, followed Doctor Hildreth into the little Kanawha Valley and in his work "Statistics on Coal," page 300, says: "In the Valley of the Little Kanawha, about six miles from the mouth of Hughes' river, is a spring from which from fifty to a hundred barrels of Petroleum are annually collected." Such, then, was the "oil business" in West Virginia, more than sixty years ago.

First Period of Development:—In 1835 George S. Lemon, a native of Lower Virginia, removed to the Little Kanawha Valley, and reared his cabin home at the forks of Hughes' river. He learned of the Petroleum in the sands near by, and, being a man of some enterprise, engaged in its collection and sale. He had known of its existence in the Great Kanawha Valley, and taking its presence as indicative of the proximity of brine, he resolved to sink a well in quest of that article, and if successful, to engage in the manufacture of salt. At the depth of about a hundred feet, brine was found, but the oil flowed in and spoiled it for salt making. His labor was not lost, however, for he now pumped the oil from the well and thus had an increased production. But scarcely had this been done, when Bushrod W. Creel appeared upon the scene as the rightful claimant to the land on which the Petroleum was collected and he now engaged in the business of collecting and selling it himself. His principal market appears to have been at Marietta, Ohio. Recently Professor I. C. White, has succeeded in securing valuable historical information regarding his sales, from old books kept by the firm of Bosworth, Wells & Company, of that town, in the ensuing years. It is thus learned that Creel's orders for "Hughes' River Petroleum" from them, began in 1847; and that in 1848 these amounted in value to $238.95; in 1849, to $288.00; in 1850, to $230.00; in 1851, to $4,400.76; in 1852, to $2,216.15; in 1853, to $1,507.00; in 1854, to $394.00; in 1855, to $239.00; in 1856, to $1,220.00; in 1857, to $409.00. No records of sales appear for 1858-9, but these amounted to $1,000.00 in 1860. The price per gallon in 1855 was thirty-three cents, but in 1857, it had risen to forty cents. Such is the earliest record found thus far of Petroleum in the commerce of the Ohio Valley. The Marietta firm, as it appears, sold to drug and chemical companies in Pittsburg, Baltimore, Cincinnati, New York and St. Louis, who doubtless put it on the market largely as a medicine.

Up the Little Kanawha river, on its right bank and now in Wirt

county, is a small stream known as Burning Springs Run, distant but a few miles from Hughes' river. The early settlers bestowed upon it this name because of the presence on its banks, near its mouth, of two sulphur or chalybeate springs, from which natural gas escaped, and when set on fire, burned over a space of several feet square. In 1842, two brothers—Rathbone by name—came from New York to Parkersburg and soon after purchased a tract of land of one thousand acres, on the Little Kanawha river, including the Burning Springs Run. Fifteen years passed away and salt making had become the leading industry of the Great Kanawha Valley. There was a so-called "Burning Spring," and why might not a *burning spring* indicate a brine producing region in the valley of the Little Kanawha? So queried the Rathbone brothers, and they resolved to make a test on their Burning Springs property. Accordingly in 1859, they began boring a well one hundred yards below the mouth of the Burning Springs Run. At the depth of two hundred feet Petroleum flowed in and they started a pump, by which means several barrels were obtained daily. The salt project was abandoned. The Rathbone brothers interested other Parkersburg men in the business. A second well, a quarter of a mile from the mouth of the creek, was drilled to three hundred and three feet when a yield of a hundred barrels daily was obtained. The Rathbone Oil Company was now formed. Another well sunk to the Dunkard Sandstone—"Cow Run Sands"—produced fifty barrels per hour, or twelve hundred daily. Excitement spread far and wide, and was intensified every hour. The history of Burning Springs in these days reads like a romance. Here was the Eldorado of 1860. It was asserted and everywhere believed, that here had been found the greatest Petroleum producing region on the globe. In August of that year, there was not a score of souls in the vicinity, and eight months later—the morning Fort Sumpter was fired upon—there were fully six thousand people at Burning Springs. The scene was similar to that at San Francisco eleven years before. It was a swarming mass of humanity representing almost every class and nation of the earth. Capitalists and adventurers from every part of the continent were there; United States Senators and members of Congress; men afterward prominent in war and peace—one of whom was James A. Garfield; Governors and many others high in official position. Fortunes were made and lost in a day; a town arose as if by magic and in the spring of 1861, the Chicago Hotel, every part of which was brilliantly lighted by mains filled with natural gas, had arisen upon a spot which six months before was covered with a thick growth of underbrush. The gas was used for light, fuel, and for generating steam.



HOTEL AT OLD SWEET SPRINGS—Monroe County—(See p. 259.)

Hundreds of thousands of barrels of oil were shipped—floated—in flat-boats, on rafts, or adrift, to Parkersburg there to be sent to market by rail or river. At last the production exceeded the cooperage and the oil was pumped in bulk into barges lashed to the river shore at the mouth of Burning Springs Run. On the 9th of May, 1863, when three hundred thousand barrels were thus stored, General Jones of the Confederate army, with fifteen hundred troops, visited the town, destroyed the machinery and kindled the largest fire ever started in West Virginia. The oil was simultaneously ignited, the boats set adrift, and as they floated down stream, the flames so scorched and burned the forest on both its banks, that the effects were to be seen years afterward. That night the light was plainly visible at Parkersburg, forty miles away.

Henceforth, little or nothing was done in the oil business until the close of the war; but the year 1865 witnessed a revival of the development and consequent excitement of five years before. Operations extended along a northwest line from Burning Springs through Wirt, Wood, and Pleasants, to the Ohio river. This was on the anticlinal then called the "Oil Break," and the chief points of development were Burning Springs, Oil Rock, the California House, on Hughes' river two miles below the forks, Volcano, Sand Hill, and White Oak. Light Oil was found at all these places except Volcano and Sand Hill, where the "Heavy oils" which, as lubricators, have gained a world wide celebrity, were obtained.

Wells multiplied in number with a corresponding increase in production, so that in April, 1876, ex-Governor William E. Stevenson, of Parkersburg, who collected the statistics of Petroleum for the West Virginia Centennial Commissioners, stated that there were then 292 wells in the State averaging about three barrels each, or a total production of nearly nine hundred barrels daily. Parkersburg was then the chief oil market, its rectifying capacity being two thousand barrels per day. Continuing, Mr. Stevenson said: "As far as can be estimated there have been produced not less than 3,000,000 barrels of oil in the State." Such was the first period—1859 to 1876— of the history of the Petroleum industry in West Virginia.

Second Period of Development—A second period—1876 to 1889—extending over thirteen years, may now be noticed. In these years there was but little extension of the productive area. Capitalists expended much money in drilling beyond its limits, but without success, for the wells were not deep enough. Lower sands must be reached, but this was not known and there was almost a steady decline in the production, as shown by the following statement:

In 1876, the production for the State was	120,000	barrels.
In 1877, the production for the State was	172,000	barrels.
In 1878, the production for the State was	180,000	barrels.
In 1879, the production for the State was	180,000	barrels.
In 1880, the production for the State was	179,000	barrels.
In 1881, the production for the State was	151,000	barrels.
In 1882, the production for the State was	128,000	barrels.
In 1883, the production for the State was	126,000	barrels.
In 1884, the production for the State was	90,000	barrels.
In 1885, the production for the State was	91,000	barrels.
In 1886, the production for the State was	102,000	barrels.
In 1887, the production for the State was	145,000	barrels.
In 1888, the production for the State was	119,448	barrels.

A total for the thirteen years of 1,783,448 barrels.

From the above statistics it appears that the production was greatest in 1878 and 1879, and least in 1884.

Third Period of Development:—A third period in the development of the oil industry may be said to begin with the year 1889, and extend to the present time—a series of fifteen years. In that year, the tide turned and there was a sudden increase in production. The drillers at last found the deeper sands; the Doll's Run, Eureka, Mannington and Sistersville fields were found and developed, and from that time to the present the growth of West Virginia's oil production has been upward with marvelous strides. How rapidly this has been is thus shown:

In 1889, the production for the State was	544,113	barrels.
In 1890, the production for the State was	492,578	barrels.
In 1891, the production for the State was	2,406,218	barrels.
In 1892, the production for the State was	3,810,086	barrels.
In 1893, the production for the State was	8,445,412	barrels.
In 1894, the production for the State was	8,577,624	barrels.
In 1895, the production for the State was	8,120,125	barrels.
In 1896, the production for the State was	10,019,770	barrels.
In 1897, the production for the State was	13,090,045	barrels.
In 1898, the production for the State was	13,603,135	barrels.
In 1899, the production for the State was	13,910,630	barrels.
In 1900, the production for the State was	16,195,675	barrels.
In 1901, the production for the State was	14,177,126	barrels.
In 1902, the production for the State was	13,513,345	barrels.
In 1903, the production for the State was	12,903,706	barrels.

A total for these years of 139,809,678 barrels,

almost an incredible number. But let us sum up the entire production of the State for all the years since it began:

For the First Period of Development (1859 to 1876) is was 3,000,000 barrels.

For the Second Period of Development (1876 to 1889) is was 1,783,448 barrels.

For the Third Period of Development (1889 to 1903) it was 139,809,-678 barrels.

Thus the State has produced a grand total of 144,593,126 barrels.

What an element of wealth this has been and continues to be! In 1898, the production in West Virginia surpassed that of Pennsylvania for the first time, and has since been greater than the production of that State and New York combined.

Of the future none can tell. Our "White Sand" oil is the purest and best Petroleum in the world, and "its production will," says Professor White, "very probably continue in the future since West Virginia, occupying as she does, the heart or central portion of the great Appalachian Coal Basin, contains a much larger area of white sand oil territory than her sister States of Ohio, Pennsylvania and Kentucky."

NATURAL GAS.

The story of the discovery of natural gas and its later development in the State is an interesting one. The first reference to its existence anywhere in the West Virginia Region was that made by a traveller who, about 1750, was endeavoring to reach the Fairfax Stone, now in Tucker county. He says that in that territory, he came to one of the curiosities of this "Great Western World." This was a small stream "four poles wide and knee deep" in the middle of which "there was a constant bubbling of waters as if a blow pipe was at work at the bottom. The wind came up with a smell similar to that of stone-coal on fire. The guide waded in, held the lock of his rifle near the bubbling part of the surface, and pulled the trigger. It flashed, and that instant a fire was blazing on the surface of the water as large as a yard square and two feet high."

Natural Gas was first known to exist in the Great Kanawha Valley at a point on the right bank of the river six miles above Charleston. Some one, years ago, asserted that George Washington, in 1775, visited the Great Kanawha Valley in person and located for himself a tract of land on which was a great natural wonder called a "burning spring." Be it known to all that this statement, so often repeated since by others, was made

without a shadow of authority for, as a matter of fact—a historical fact—George Washington never saw the so-called "Burning Spring property; nor was he ever in any part of the Upper Kanawha Valley; nor was the "great natural wonder" a spring at all. In 1808, Lewis Summers, afterward an eminent Virginia jurist, visited the Great Kanawha Valley; in his journal, he says of this curiosity: "The water is collected from the rains and is contained in a sunken spot, through the bottom of which there are several appertures through which pass continual currents of inflammable gas, which gives the water the appearance of a boiling spring. This gas will take fire as soon as it passes through the water and blazes to the height of five or six feet and will continue until extinguished by the wind."

The historical fact is that this so-called burning spring was discovered by John Floyd, deputy surveyor of old Fincastle county, on the 10th of April, 1771; that the tract was located and surveyed by Samuel Lewis, surveyor of Augusta county, assisted by Leonard Morris, in 1775, for George Washington and General Andrew Lewis jointly, the latter of whom had passed the spot with the Virginian army the previous year; that they received a patent for this land from Virginia, while Thomas Jefferson was governor. Washington in his last will referred to this property thus: "The tract of which the 123 acres is a moiety was taken up by Gen. Andrew Lewis and myself, for and on account of a bituminous spring, which it contains, of so inflammable a nature as to burn as freely as spirits, and as nearly difficult to extinguish."

The first gas ever struck in the State was in a well drilled for brine, by Captain James Wilson, within the limits of Charleston, in 1815. He did not obtain as good salt water at the usual depth as was expected, and, instead of being discouraged, he declared that he would obtain a stronger brine, or bore into the regions with a higher temperature. Work was continued for a little time when the drill struck a cavity which gave vent to an immense flow of gas and brine. The gas caught fire from a grate near at hand, and blazed up with great force and brilliancy, much to the consternation of the well borers and bystanders. Captain Wilson thought it would be a reckless tempting of Providence to go any deeper, and ordered the boring stopped.

Henceforth gas in great quantity was found in the salt wells in the Great Kanawha Valley. In 1841, William Tompkins, in boring a salt well a short distance above the "Burning Spring" struck a large flow of gas, which he at once turned to account by using it as a fuel for "boiling his furnace," and by so doing greatly reduced the cost of salt. This was the

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NORTHEAST FRONT OF HOTEL AT CAPON SPRINGS—Hampshire County—(See p. 259.)

first use ever made of Natural Gas as a fuel for manufacturing purposes, not only in West Virginia, but in the United States, and that was sixty-three years ago.

In 1843, Dickinson and Shrewsbury, enterprising salt makers, while boring a well for brine a few rods distant from the Tompkins well, tapped, at a depth of a thousand feet, nature's great gas reservoir of this region. The distinguished Doctor John P. Hale, then a young man, thus describes this event: "So great was the pressure of this gas and the force with which it was vented through this bore-hole that the auger, consisting of a heavy iron sinker weighing some five hundred pounds, and several hundred feet more of auger poles, weighing in all, perhaps one thousand pounds, was shot up out of the well like an arrow out of a cross-bow. With it came a column of salt water which stood probably one hundred and fifty feet high. The roaring of this gas and water, as they issued, could he heard under favorable conditions for several miles. . . . For many years the natural flow of gas lifted the salt water a thousand feet from the bottom of the well, forced it a mile or more through the pipes to a salt furnace, raised it into a reservoir, boiled it in the furnace, and lighted the premises all around at night."

Thenceforth, it was the principal fuel used in the Kanawha Salines. With the development of the Burning Spring oil region and its extension, vast quantities of gas were found and it has been said that in that field alone, gas enough has been wasted to light the cities of America for a series of years. Prior to the year 1882, nearly all the gas known in the State was accidentally discovered in boring for oil, and no systematic search was made for it until its great value as a fuel became generally recognized. It is now sought and found chiefly along the crest of anticlines, while those who have tested the synclines have almost invariably met with failure and consequent financial disaster.

We quote the following from Professor White: "Along this wonderful recent growth of the petroleum industry in West Virginia there has been a corresponding increase in the production of natural gas, so that this State now stands first of all the States of the Union in the production of this matchless fuel, and with proper care in husbanding this source of power and the prevention of needless waste, it should last for another generation at least."

"Nearly all the principal towns west of the Alleghenies are now supplied, or about to be supplied with this fuel, while the Pittsburg region receives many million feet daily through the great 16-inch pipe line of the

Philadelphia Company, which, crossing through the immense gas fields of Wetzel county, extends down into the central portion of Tyler. The Tri-State Gas Company is supplying Steubenville and many other Ohio towns from West Virginia. The Wheeling Natural Gas Company, the Mountain State Gas Company, and others have extensive plants, while the Carnegie Company, which consumes in its various iron and steel works at Bessemer, Duquesne, Homestead, and Pittsburg, thirty to fifty million feet daily, has let the contract for an extension of its lines into West Virginia territory. The hundreds of drilling wells, and thousands of pumping oil wells, and all the pipe lines for handling the oil produced within the State, the water supply, and everything connected with the oil industry, receive practically all of their power from the consumption of natural gas, and the quantity thus burned in useful work must run into millions of cubic feet daily, probably not less than two hundred millions, while the amount wasting into the air from oil wells and safety pressure valves of the pipe lines is probably as much more."

OTHER METALS AND MINERALS.

IRON—FIRE CLAY—POTTERS' CLAY—BUILDING STONES—GLASS SAND—MARBLE—OCHRE—OTHER ELEMENTS.

The State Economic and Geological Survey has not, as yet, issued its volume treating of these elements of wealth, but when it does it will give minute details as to quality and exact location, geological horizon, and quantity, for they are so bountiful that they are known to exist here, there, and everywhere, over the State.

IRON ORE.

"The iron to be found in West Virginia, may," says Professor Maury, 'be divided into two classes:

"1. Those ores which belong to, and are found in the Appalachian Coal Measures, consisting of Brown Oxides, Carbonates, and Black Bands, and in some places nodular red hæmatite.

"2. Those which belong to the region lying between the eastern escarpment of the coal formation and the eastern border of the State, forming a part of the great iron belt of the Atlantic States, and consisting of the brown and red hæmatites, which are much more rich and abundant than those of the first class."

Continuing, he notes the presence, in quantity, of Iron Ore in the counties of Barbour, Berkeley, Braxton, Clay, Grant, Greenbrier, Hampshire, Hardy, Jackson, Jefferson, Kanawha, Mercer, Mineral, Monongalia, Monroe, Morgan, Pendleton, Pocahontas, Preston, Raleigh, Taylor and Wayne.

Professor S. B. Brown, of the Chair of Geology and Mineralogy in the State University, says that our best ores are in the counties of Hampshire, Grant, Pendleton, Hardy, Pocahontas and Greenbrier. These counties, as stated by Professor Maury belong to the Iron Belt of the Atlantic States.

West Virginia is destined to become the seat of great manufacturing industries—some of which will be those of iron and steel; and generations hence the ores of her hills and mountains will feed the furnace doors, to be melted by the roaring blast.

FIRE CLAY.

Fire Clay is largely existent in the Coal Measures of the State, where it is often found underlying a seam of coal. It is the result of the decomposition of silico—argillaceous shale—and its plasticity and impervious nature, when it is collected in a bed, prevent it from being carried away by infiltration. It is present in many counties of the State, chief among them being Hancock, Marion, Monongalia, Taylor, Harrison, Mason, and Kanawha. The fire brick, sewer pipe, and pottery interests at New Cumberland, in the first named county, use the Kittanning Fire Clay of the Allegheny Series and it is this that is present at Hammond in Marion county, and at Henderson in Mason county.

POTTERS' CLAY.

Potters' Clay comes from the decomposition of the shales which exist in such great abundance in West Virginia that we have found and may expect to find extensive deposits of Potters' Clay in many sections of the State. Where it is yellow or red, it denotes the presence of oxide of iron which gives a red tinge to the manufactured articles; when the clay is white, there is no iron present. This clay possesses the very valuable property of resisting great heat without cracking. It has been worked for years at many points in the State, to be mentioned hereafter.

BUILDING STONES.

From the various Limestone and Sandstone strata of the State most excellent building material of innumerable shades and colors may be had. Many of the limestones in the more elevated portions of the State yield a

beautiful and durable material for any class of work. It is used extensively in foundations, chimneys, and dams, and some of the prettiest and most enduring churches and homes are constructed wholly of it. There is of this material in the State, a quantity sufficient to supply the continent with building material, and, if burned, it would furnish lime to the world for ages to come. Then, too, everywhere over the State are sandstones of almost any texture and which can be quarried into almost any size or shape. These are extensively used in the erection of both private and public buildings. Of the latter, the use of these native stones may be seen in the walls of the State Capitol, the Hospital for the Insane at Weston, in numbers of school buildings, and in the State Prison at Moundsville.

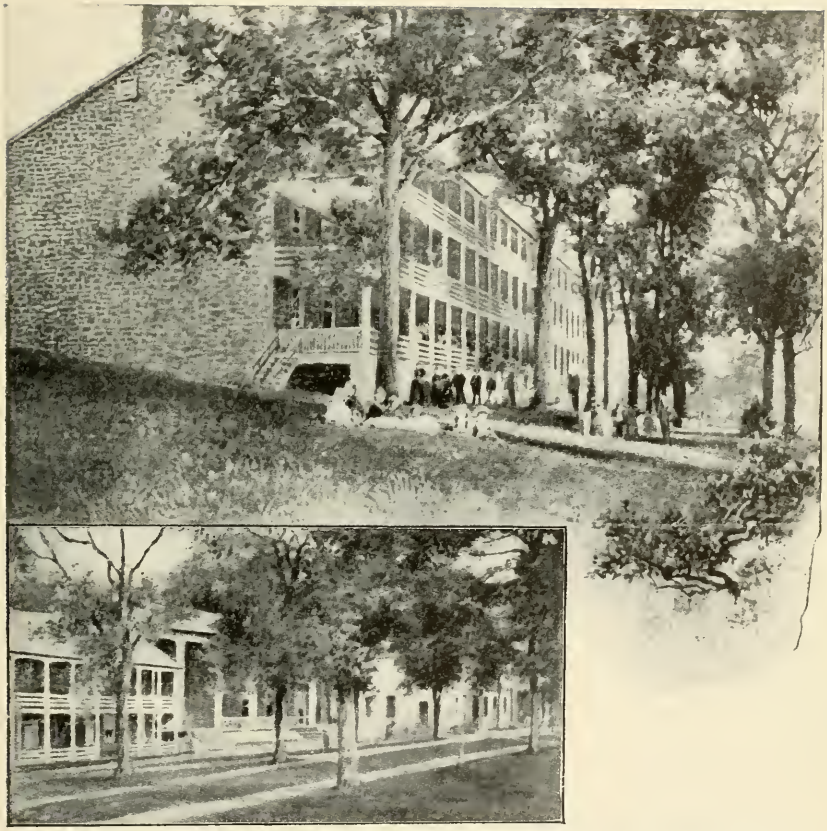
Professor Brown, speaking of our Building Stones, says: "Among our Building Stones, our resources are limited to limestone and sandstone. The sandstones are the ordinary Coal Measure Gray Sandstone, and the Blue and Brown Sandstones of the older formations. The Brown Sandstone of Summers county is of singular excellence and ought to become one of the most fashionable building stones of our country."

GLASS SAND.

Here we may again quote Professor Brown, who says: "Of Glass Sand, we have also a great abundance and in great excellence." So we have, for in many parts of the State are vast deposits of pure, white, siliceous sand, which is most admirably adapted to glass making. In the greater number of deposits, it contains no trace of any deleterious coloring matter. From its great quantity and purity it will henceforth form a very important element in the mineral wealth of this highly favored State.

MARBLE.

Marble is known to exist in several localities of the State, but the most valuable deposit is reported from Pocahontas county. This Marble has been examined by many chemists and has been pronounced to have most excellent qualities for building material, and will stand extreme heat and cold without crumbling. In quality, the marble may be divided into two general grades: The one ranging from the richest red to the deepest maroon color; while the other may be called dove-colored, richly marked with white, mottling, and dark veins. George C. Underhill, of Vermont, who has made a lengthy report upon this deposit, says: "A careful study of the outcroppings indicates that there are several miles of fossiliferous marble strata. . . . The vein is at least forty feet thick and lies nearly hori-



VIEWS AT SALT SULPHUR SPRINGS—Monroe County—(See p. 258.)

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zontal at all points coursing through and through the low range of hills wherever it is located. There is no possible way to determine the full depth of the stratum except by core drill or uncovering the exposure to a greater depth than has yet been attempted, or by actual excavation; nor does it matter much whether it be proven of a greater depth than shown by outcroppings, for there is already more marble in sight than has been used during the ages. This is in no sense extravagant or overdrawn."

OCHRE.

Yellow Ochre is existent in many parts of the State, especially in the counties of Lewis, Hardy, Jefferson, Pendleton, Cabell, and Wayne, where some of the deposits are three feet in thickness. It mines easily, can be ground to powder, either raw or burnt, with the greatest facility, and, as it can go to the market at once without further preparation, as a mineral paint of excellent quality, it has become an element of much value, since we have transportation to all parts of the country.

OTHER ELEMENTS.

Professor Brown, speaking further of our metalic and mineral elements, says: "Silver and Gold have we none." Then he adds that he has found lead in ores sent from the counties of Berkeley, Morgan, Hampshire, Preston, Webster, Clay and Kanawha; zinc, in specimens received from Randolph and Hampshire counties; and barite, or heavy spar, in ores from Jefferson and Randolph.

Additional information regarding these natural resources will be found in the article treating of Manufactures.

THE MINERAL SPRINGS OF WEST VIRGINIA.

"He sendeth the springs into the valleys, which run among the hills."—PSALMS CIV:10.

West Virginia abounds in Mineral Springs. Indeed, she may boast of more of these than any other State in the Union,—springs of various qualities of waters remarkable for their superior virtues and properties in healing and disorders of the human body. Their existence is to be inferred by the scientists from the general geological character of West Virginia, and especially from the presence of her great abundance of minerals. Many of

these medicinal waters have been well and thoroughly tested for years—some for a century, and are thus proven to be equal, if not superior to any waters of their class found anywhere in the world.

West Virginia comprises within her southern and southeastern border a large portion of the celebrated mineral springs plaza, long known as the "Spring Region of Virginia," and which, for more than a hundred years, has been a place of resort for seekers of health and pleasure from every great section of the United States.

The springs of this State present considerable variety of chemical character, and therapeutic adaptation—comprising various and differently compounded *Sulphur* waters; the *Chalybeates,* simple and compounded; the *Acidulous,* or *Carbonated;* the *Saline;* the *Aluminated Chalybeates;* with thermal waters but not of very high temperature.

Of these springs, the Sulphur waters, so far as such springs have yet been developed, are found in greatest abundance, and in greater strength on the southern border of the State and on the western and northern slopes of the Allegheny mountains. The Simple Chalybeates, are found in every great section of the State, but in greatest strength, so far as they have been tested, along the course of the great Appalachian ranges, extending from the northeastern to the southwestern extremities of the State.

The Acidulous carbonated waters, as well as the Aluminated Chalybeates, are found in different parts of the State, but have been most fully developed on its southern border.

The most valuable mineral waters of the State so far as they have been tested in the treatment of diseases, are the Sulphurous,—the alum waters, as they are called commonly, and the Compound Acidulated waters. The latter especially, are generally found adjacent to faults in the strata, or where the rocks give evidence of displacement from their natural position, and near the junction of slates with limestones.

The Alum waters are an infiltration through slate which generally lies a few feet below the surface of the earth, but often cropping out considerably above it. Examination of numerous specimens of these waters, obtained from different sections, show them all to possess the leading chemical characteristic of the springs of this class, which have been brought into popular use.

It is not the purpose of the writer to notice—even to mention—all of the medicinal springs in the State, but rather a sufficient number to show the character of all.

THE GREENBRIER WHITE SULPHUR SPRINGS.

The White Sulphur Springs—"the Saratoga of the South"—is the most celebrated watering place in the mountains of the United States, and not only is it the best known, but one about which clusters the greatest variety of historical associations. The land upon which it is situated was originally patented by Nathan Carpenter, who reared his cabin near the spring and removed his family to it in 1774. Soon after his settlement his house was attacked by the Indians, and he and every member of his family murdered except his wife, Kate, and an infant. The mother with her babe escaped to a high mountain, where she remained in concealment for some time. Then with her infant—now the dearest object on earth—she fled to the East, where she found her friends and related to them the sad story of the fate of her family in the wilds of West Augusta. It is said that from this child have sprung some of the wealthiest and most influential families of Staunton, and "Kate's Mountain" will never cease to be an object of interest to those who visit the White Sulphur Springs.

The massacre of the Carpenters did not deter others from settling near the site of the bloody tragedy, and some years later came William Herndon, the first to open the Springs as a public resort, he having leased the property from James Caldwell for a period of ten years.

Early in the history of the country, years before Mr. Carpenter came, explorers, hunters, and trappers drank of the health-giving waters which flowed from this mysterious fountain and related to their friends the story of what seemed to be the rival "Fountain of Perpetual Youth." As early as 1772, a woman was brought here on a litter a distance of forty miles, her disease having baffled the skill of the most eminent physicians in Virginia. A tree was felled and a trough made and filled with water which was then heated by putting hot stones into it. In this the patient was bathed, at the same time drinking freely from the fountain. Strange to relate, at the termination of three weeks she was able to walk to her home. The fame of the cure attracted many invalids to the spring, and rude cabins soon began to be reared around it. But the dreariness of the mountains which had to be crossed, the bad condition of the roads, and the poor accommodations, deterred all but the most desperate from attempting to reach the health-giving waters until 1818, when James Caldwell came into possession of the property, and from that time dates the history of this place as a national resort.

Nature has done everything possible to render it an enchanting spot.

The valley opens about half a mile wide, and winding in length from east to west, finally passes away into the mountains beyond the view. On every hand is presented the grandest scenery. The elevated plateau from which the spring pours forth its healing waters at a height of two thousand feet above sea level, commands a lovely and extended view to the southwest, while to the east and west the whole horizon is fretted with mountains, the peaks of which, glistening in the clear sunlight, seem to kiss the skies. Kate's Mountain and the Greenbrier range with an elevation of three thousand five hundred feet above sea level, surround and shelter the valleys, while the towering Alleghenies are seen five miles away to the north and east.

Art has done her part as well. Within a few rods of the Spring, stands the Grand Central Hotel, among the finest buildings of its kind in the South; beautiful walks and drives extend in every direction separating one lawn from another. Long rows of dazzling white cottages stretch away on every side, contrasting beautifully with the verdant foliage of the lofty forest trees which overshadow them. At night, brilliant jets of electric light flash all around, while strains of sweet music fill the air.

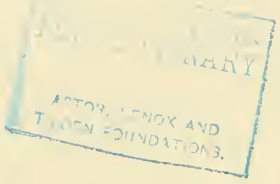
The fountain itself is crowned with a stately Doric dome, supported by twelve large pillars, the whole surmounted by a colossal statue of Hygeia, looking toward the rising sun.

The station of the Chesapeake & Ohio Railway is practically at the doors of the hotel, but far enough removed not to mar the beauty of the vast lawn, which is shaded by ancient oaks and maples and towering pines, and at the head of which is the Grand Old Fountain, from which pour fifty thousand gallons of the health-giving waters daily. Three miles to the southwest, on the summit of the White Rock mountains, is a gigantic figure in solid rock, resembling a human being, called "Old Titan,' who, in all his solitary grandeur, keeps watch over the "Old White."

BERKELEY SPRINGS.

These, the oldest of the West Virginia springs known to civilization, are situated in Morgan county, three miles from the Potomac river at the mouth of Sir John's run, so called from Sir John Sinclair, the Quartermaster General of Braddock's army, who here stored his supplies, while it advanced up the Potomac, on its march to the fatal field of Monongahela, in 1755.

On Friday, March 18, 1747, George Washington and party, then engaged in surveying lands for Lord Fairfax, were in the vicinity and in his journal he says: "This day called to see Famed Warm Springs." These springs, thus *famed* in 1747—one hundred and fifty-seven years ago—were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A WEST VIRGINIA FOREST--Deciduous Trees—(See p. 263.)

first called "The Warm Springs;" then known as "Bath Springs," and are now "Berkeley Springs." They have been deservedly popular from the date of their discovery. Lord Fairfax vested the title to them in the Colony of Virginia that the water might be forever free to the public. A settlement early grew up around them, and in 1776, the Virginia House of Burgesses, established there the town of "Warm Springs." This act required all persons purchasing lots therein to build within twelve months after the day of sale on each lot "a dwelling house twelve feet square, fit for habitation." In 1785, it was shown that some of the purchasers had not erected these "fit places for habitation" and they were granted an extension of two years in which to comply with the law.

George Washington, after the Revolution, bought lots, erected a cabin and a stable, and with his family passed part of the summers here. His half-brother, Lawrence, spent nearly a year at these springs in search of health, before going to England and afterward seeking it in Barbadoes. Among others of note and distinction who had summer homes here were Charles Carroll of Carrollton, Major-General Horatio Gates and General Adam Stephen, of the Revolution. In 1820, Berkeley Springs was made the seat of justice of the new county of Morgan, that year formed from part of Berkeley. Virginia controlled the property until after the division of the State, since which time the title has vested in West Virginia and it is controlled by a board of trustees appointed by the Governor.

The volume and unceasing supply of water is for copiousness a curiosity among similar resorts on either side of the Atlantic. It is discharged from five principal sources at the rate of two thousand gallons per minute. It is clear and crystaline, tasteless, and of a uniform temperature of 70° Fahrenheit. Its component parts are carbonate of lime, crenate, iron, chloride of sodium, calcium, sulphate of magnesium, and silicate of lime. There are stone swimming pools and many private baths for ladies and for gentlemen, A branch of the Baltimore & Ohio Railroad extends from the main line to the Springs.

THE RED SULPHUR SPRINGS.

The Red Sulphur Springs are located on Indian creek, in Monroe county, twelve miles from Lowell Station on the Chesapeake & Ohio Railway. This has been distinguished as a watering place for more than a hundred years. On the 5th day of December, 1796, when these springs were in that part of Botetourt county which, in 1802, was added to Monroe, the General Assembly established, by legislative enactment, a town by the name

of Fontville on sixty-five acres of land at these springs and created a board of trustees whose duty is was to lay out these lands into one hundred lots, and, after giving three weeks notice thereof in the *Virginia Gazette,* to sell them at auction to the highest bidders, who were required to erect on each purchase "a dwelling house at least sixteen feet square, of wood, brick, or stone, with a brick or stone chimney." No tanneries, distilleries, or butchers' stalls, or other occupations or professions which should annoy or injure the inhabitants were permitted to be "erected or carried on in the town."

Baths, comfortable and sufficiently capacious for the use of all who might resort thither, were to be erected and kept in repair at the expense of the citizens. The town never developed, but the springs have been a favorite resort for more than a hundred years. The waters are clear and cool, having a temperature at all seasons of 54° Fahrenheit. They have long been famous in the treatment of various diseases of the lungs as well as many other ailments for which the milder sulphur waters have been advantageously employed. There are excellent accommodations for guests. They are the only springs of the kind in this country. The analysis of the water shows that sulphur is by no means its principal ingredient, but phosphorus in a high state of potency has been most efficacious in reaching the seat of disease. It also contains a peculiar sulphur compound or gelatinous substance, which is the distinctive feature of this water, the virtues of which have been held in high esteem for the last half century.

THE SALT SULPHUR SPRINGS.

The Salt Sulphur Springs on Indian creek, near the town of Union in Monroe county, have been for many years a favorite resort. They are surrounded by beautiful mountain scenery and are reached by driving over a splendid road fourteen miles from Fort Spring Station on the Chesapeake & Ohio Railway. In addition to the Salt Sulphur Springs, there is an Iodine Spring, a Sweet Sulphur Spring, and a Chalybeate Spring; thus affording an opportunity for a variety of treatment, but it is not so much a resort for invalids as for those who desire rest and recreation.

The "Old Salt" is like a hospitable manor of the old regime; with its beautiful park through which, under magnificent forest trees, a clear stream flows. On the wide porches of its spacious, comfortable, and substantial buildings, the days are always cool.

The hotel and cottages are built of stone, and contain roomy and comfortable apartments, nicely furnished and easy of access. The wide and lofty ball room, with its splendid floor, is a superb place for dancing. A

neat little stage, with several sets of scenery and a large assortment of costumes, is always ready for amateur theatricals. The old Erskine House with its grey stone walls, its roomy porches on every floor and its spacious parlors is a picturesque building. Adjoining it, are eleven acres of most beautiful lawn. The elevation is two thousand feet above sea level.

THE OLD SWEET SULPHUR SPRINGS.

The Old Sweet Springs, of Monroe county, distant ten miles from Allegheny Station on the Chesapeake & Ohio Railway, next to Berkeley Springs, is the oldest watering place in West Virginia, having been opened several years before the famous Greenbrier White Sulphur. It is, therefore, one of the best known resorts in the South and many distinguished men have had their summer homes at this place. The location is in a more open country than one would expect to find in a mountainous district; the springs flowing from a fertile valley near the base of Pott's mountain, on the crest of which is the boundary line separating the two Virginias. The hotel accommodations are extensive and comfortable, all buildings being of brick and of the most substantial character. The visitor is impressed at first sight, with the amount of capital that must have been invested to secure such results. The bath houses, in which are located the gentlemen's and ladies' swimming pools are of brick and appropriately arranged. The water which has a temperature of from 72° to 76° Fahrenheit, is of a tonic character, mildly cathartic and alterative, and is applicable to cases of debility and also to many forms of dyspepsia and functional diseases of the stomach and bowels. There is no reason why any one should ever suffer from loneliness at the Old Sweet Sulphur Springs.

THE CAPON SPRINGS.

Nestling snugly in a narrow glen on the west side of the Great North Mountain, and on the east side of Great Cacapon river, in Hampshire county, is Capon Springs, one of the most popular resorts in West Virginia. They were discovered about the year 1775 by a man named Henry Frye. He was out hunting in the vicinity and near the mountain top killed a large bear; then, being thirsty, he descended in search of water. He was rewarded in this by finding a large spring, but it was thickly covered with moss and other rubbish; this he removed and drank of the water, which he found to be disagreeably warm, and it at once occurred to him that it possessed some valuable medicinal properties. His wife was an invalid, suffering from rheumatism, and the next year he erected a small cabin at the

spring and removed her thither, and after drinking the water and bathing in it for several weeks, she was restored to health. From this occurrence, the fountain was for many years known as Frye's Spring, but at length came to be known as Capon Spring, from the beautiful mountain river flowing hard by, and which the Indians knew as *Kakapon-se-pe,* signifying "river of medicine water." The springs were known to the Indians long before Henry Frye found the mysterious fountain. These children of nature were, in many instances, afflicted with the same, or similar diseases to those that trouble the white people of today, and when so afflicted, they resorted to the water of Capon for cure. When all other means of relief had failed, their sick, from as far east as the sea, and from beyond the Ohio river, were transported to this "medicine water," to there drink of and bathe in it, as it gushed forth fresh from the mountain side, and rare indeed was the case in which relief or cure was not afforded. They had no educated, scientific doctors to tell them of the properties of the water, no chemist to analyze its constituents. Their doctors were Nature and Experience. This medicine water cured them of many ills, and they looked upon it as a gift from the Great Spirit, which, indeed, it is.

Here, "far from the madding crowd," the lover of nature finds pleasing revelations on every side. The great weird mountain, on the one hand, excites his emotions, while the beautiful, peaceful valley, on the other, suggests rest and repose. In the clear, pure air, he breathes fresh energy and strength, while the balmy sunshine warms his heart and brings a healthy color to his cheeks. Here are splendid hotels and baths, with boating on Capon Lake—a wide and long basin in Capon river—and here many people from the North and the South have their summer homes. Capon Road Station, on the Valley Branch of the Baltimore & Ohio Railroad is the depot for Capon Springs.

WEBSTER SPRINGS.

Webster Springs, now grown famous, are at the town of Addison, the seat of justice of Webster county. They were discovered about a hundred years ago. The country at that period was a vast wilderness sparsely inhabited and but little frequented, except by hunters in quest of wild game. It soon became known to them that this spot was frequented at certain periods of the year by an unusually large number of deer, bear, and other animals. Well trodden paths made by these denizens of the forest led direct to a small spring close to the river bank. Curious to know why the animals should prefer this water to that of the beautiful

A WEST VIRGINIA HEMLOCK FOREST—(See p. 273.)

Elk river, a clear, crystal-like mountain stream, they tasted of the water and found that it was highly impregnated with salt, which accounted for the place being a sort of rendezvous for wild game. Hunters, who pitched their tents near this spot, in using the water, discovered that it was a splendid purgative. Others, who were more or less afflicted with rheumatism, scrofula and blood diseases found great relief or permanent cure from its use. These beneficial results so received, led others suffering from various chronic diseases, to the Springs, until now thousands visit this resort annually to pluck from the hand of nature their lost health.

Until very recently Webster Springs has been nearly inaccessible, owing to the fact that no railroad ran nearer than sixteen miles, and the mountain road being very rocky, steep and dangerous to drive over, even during the summer months. Notwithstanding this, visitors have poured into the town during the summer by thousands, and for no other purpose than to drink of this life-giving water.

But all has now changed. The Holly River & Addison Railroad lands passengers directly at the Springs. With the completion of this road, the town has taken on new energy. Dozens of new cottages are going up, and the hotels are being enlarged to accommodate the increase in the number of visitors. A large sanitarium is now under construction, which, when completed, will cost nearly a hundred thousand dollars, and will be one of the most complete and modern sanitariums in this country.

The waters contain silica, chloride of magnesia, chloride of calcium, chloride of lithia, chloride of sodium, and sulphur, with traces of iron and alumina. The elevation of the Spring is fourteen hundred and thirty feet above sea level, with mountains fifteen hundred feet higher in view.

SHANNONDALE SPRINGS.

Five miles east of Charles Town, in Jefferson county, on a peninsula known as the "Horse Shoe," formed by a curve in the Shenandoah river, are the Shannondale Springs, three in number—a Chalybeate, a Red, and a Blue Sulphur. These are surrounded by one of the most captivating landscapes in the whole of that far-famed valley. The scenery is unsurpassed for its varied beauty and grandeur, exciting the admiration of all who behold it. The virtues of these waters were known at the beginning of the last century, a few extraordinary cures of obstinate scarbutic complaints having been effected by their use; suddenly, because of this, the waters acquired a high reputation and by the year 1820, the Springs had become a place of resort for those in quest of health. A company was organized,

about that time, which purchased the site and proceeded to erect a brick boarding house and other buildings for the accommodation of visitors.

The Shannondale water, the temperature of which is 55° Fahrenheit, contains carbonate of lime, sulphate of lime, chloride of magnesium, sulphate of magnesia, chloride of sodium, sulphate of iron, and carbonate of iron, and may be used with good effect as a mild alterative tonic in some forms of dyspepsia, nervous diseases and general debility.

THE GREENBRIER BLUE SULPHUR SPRINGS.

These springs, located on Muddy creek, eight miles from its mouth, in Greenbrier county, no longer open, were once the most noted, and the property the most valuable of its kind in the Virginia mountains. The main building was three hundred feet in length and three stories high, balconies running the whole length of the front on all floors, and ells on each end extending to the rear. The property was sold by judicial sale in 1858, and purchased by the Western Baptist Association of Virginia, to be used as a college. Thus it was continued for two years, Henry Mason Mathews, afterward a governor of West Virginia, being a member of the faculty. The building was destroyed by fire in 1860; partially rebuilt, it was used for a hospital, but a second time destroyed by fire, in 1862, and never again rebuilt. Early in the century, Doctor Alexandre Martine, a physician and surgeon who had been with Napoleon at Waterloo, came to the United States and located at the Blue Sulphur Springs where he introduced the first medicated hot baths in America.

OTHER MINERAL SPRINGS.

Among the many other mineral springs of the State, more or less prominent, may be mentioned Pence's Spring, in Greenbrier county; Hunter's Springs, Crimson Springs, and Yellow Springs, in Monroe county; Hardy White Sulphur Spring, in Hardy county; Guinn's Spring in Fayette county and Mineral Wells in Wood county, the waters of all of which possess the virtues and properties of those of the more noted springs.

THE WEST VIRGINIA FORESTS.

FOREST TREES, SMALL TREES, SHRUBS, AND MEDICINAL PLANTS.

Forests can only grow in regions through which, or over which, an abundance of moisture is evenly distributed throughout the year. Such a one is West Virginia.

The student of Botanical Geography knows that the North American Continent is divided into six Plant Regions, each characterized by a distinct flora. One of these—the Forest Region—extends from the latitude of Great Slave Lake, southwestward along the Appalachian Mountain System, even to the shores of the Mexican Gulf. West Virginia lies in its central part—its culminating point—where the deciduous trees and the evergreens, the hard woods and the soft woods mingle, flourish, and grow to enormous size in the rich soils of the valleys, hill-tops and mountain sides, The State may, therefore, because of its geographical location, be said to contain one of the densest forest areas on the globe.

This forestry is remarkable for its extent, its variety, the number of its species, and for its contrasts. Indeed, it may be said that in all the elements which render forest scenery attractive, and its products valuable, no other portion in the United States presents them in happier combination, in greater perfection, than the region stretching away across West Virginia from the banks of the Ohio river to the summit of the Allegheny mountains. Certainly, in no other similar area in all America can a greater variety in species or in size be found. Of some of these we shall now speak.

THE DECIDUOUS FOREST TREES.

Ash.—*Fraxinus.*—This tree is found distributed over every portion of the State. Its distinguishing qualities being strength and elasticity, it furnishes one of the most valuable timbers. There are several varieties in the State.

The Blue Ash.—*Fraxinus quadrangulata*—in favorable situations attains a height of sixty or seventy feet and a diameter of from fifteen to thirty inches. The shoots are quadrangular and have four membranes placed

opposite each other. The wood possesses the characteristic properties of the species, and is highly valued for flooring and door and window casings of houses. It derives its common name from the fact that a blue color may be extracted from the bark.

The Green Ash—*Fraxinus veridas*—is found along the banks of small streams in the mountain regions.

The Red Ash.—*Fraxinus rubescens*—is somewhat rare and found chiefly on the Cumberland Plateau, where it attains a height of from sixty to seventy feet. The wood is redder than that of the other varieties but is used for the same purposes.

The Water Ash.—*Fraxinus platycarpa*—is found along the banks of small streams which discharge their waters into the Ohio.

The White Ash.—*Fraxonus Americana*—is found in all the region from the mountains to the Ohio and has a straight trunk and grey furrowed bark. It sometimes attains a height of seventy to eighty feet, with a diameter of twenty-four to thirty-six inches. Because of the strength and elasticity of its wood, it is extensively used by carriage makers and wheelrights.

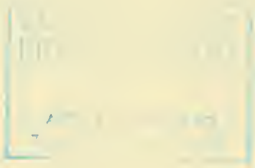
Aspen—*Populous tremuloides*—commonly known as the quaking asp, is a tree rather rare, and probably not properly identified with the West Virginia flora. In Mason and some other counties in the western part of the State it attains a height of from forty to fifty feet. The leaves are on long slender petioles and affected by the slightest breeze. A syrup made from the bark and twigs is extinsively used as a remedy for cold and throat affections.

Beech—*Fagus ferruginea*—is a beautiful tree with smooth, mottled grey bark and shapely leaves which, even in the winter time, though changed by the frost to a delicate brown, continue to cling through the storms to the boughs and retain an attractive beauty. It grows from eighty to one hundred feet in height and often has a diameter of from two to four feet. The wood, white, compact and tough, is used in box making, journals in machinery, chair bottoms, plane stocks, shoe lasts, and tool handles. The sweet nuts make a fine mast.

Birch—*Betula.*—Two varieties of this tree grow in West Virginia, one or the other of which may be found in almost every county of the State.

Black Birch—*Betula Lenta*—is a large tree common on the Allegheny Highland; prefers the shady mountain side and has on the trunk a dark brown, close bark with a sweet aromatic odor. The wood is rose-colored, fine-grained and valuable for cabinet work.

COAL FLEET ON THE GREAT KANAWHA RIVER—View near Charleston—(See p. 22)



Red Birch—*Betula Nigra*—is rather a large tree. Its home is on the banks of the rivers, its hanging boughs often drooping into the water. It is abundant in some localities. The wood is highly colored and valuable for drawers for bureaus, dressers, and tables.

Buckeye—*Aesculus glabra*—is a large tree of rapid growth; prefers rich bottom land; a straight, tall, and very handsome tree with trunk unobstructed by limbs or foliage for a great distance upward. The wood is light, soft and porous, not inclined to split or crack in drying, and is valuable for making troughs, bread trays, wooden bowls, and other articles of similar ware.

Chestnut—*Castanea vesca*—is one of the largest forest trees of the State and is widely distributed; it attains its majestic dimensions of from five to seven feet in diameter and a hundred feet in height, on the mountain slopes or hill-tops throughout all of the central portion of the State. Its wood is light, strong, elastic and durable and has furnished material for fence rails for a hundred years, is excellent for making boxes, and has recently come into use as an ornamental wood both for household furniture and the interior finishings of houses, its color being agreeable and the veining quite beautiful. The nuts of this tree are the chestnuts of the markets.

Cottonwood—*Populous Heterophylla*—is found growing along the banks of the southern rivers of the State, where it often reaches a large size. The wood is soft and its fiber so silky as to insure the best results in paper making. It splits easily, but the wood is not durable when exposed. On Six Mile Island, in Mason county, this tree attains a diameter of four feet.

Cucumber—*Magnolia acuminata*—is widely known in the State as the White Magnolia because of its profusion of large, showy, white flowers. The trunk is straight and of uniform size, the tree often attaining a height of seventy-five feet, and destitute of branches for two-thirds of its length. The wood is white, not very hard, nor yet very fibrous, is easily manageable under the turning lathe, and is used for making hollow ware. The bark is aromatic while the fruit resembles a small cucumber and is used as a preventative and remedy for autumnal fevers. It grows luxuriantly on the banks of Tug river.

Dogwood—*Cornus florida*—is found everywhere in the State; attains a height of from thirty to thirty-five feet and a diameter of from nine to twelve inches. When in bloom it is the pride of the West Virginia forests, and, covered with its wealth of red berries in autumn, it is a thing of beauty. It is usually too small to enter largely into commerce but its

wood is a very handsome one for furniture or parts thereof requiring narrow strips or boards, being susceptible of a high polish. It is also used for making the handles of light tools, mallets, and hames for the harness of horses. The inner bark, extremely bitter, forms an excellent substitute for Peruvian bark. From it the Indians made a scarlet dye.

Elm.—*Ulmus.*—This tree is found throughout the whole State and needs but brief description. The Washington Elm, at Berkeley Springs, in Morgan county, which, tradition says, was planted by General Washington in front of his cabin at that place, is now the pride of the State. It is a mammoth tree, being eighteen feet in circumference three feet from the ground, fully a hundred feet in height, and having a width of foliage of from eighty-five to a hundred feet. The storms of nearly a century and a half have swept through its boughs without injury to one of them and the tree is now perfectly sound. A limb that hung so low as to be an obstruction has been recently removed and cut into small blocks which were sold as souvenirs.

Red or Slippery Elm—*Ulmus fulva*—is found in all sections of the State, but is met with most frequently in the Ohio Valley Region. It attains a height of from sixty to eighty-five feet with a diameter of from one to two feet. The wood is coarse, strong and of the very highest value in making ships' blocks. The inner bark furnishes a mucilaginous substance much used in colds and bronchial affections and for emollient plasters.

Small Leafed Elm—*Ulmus Alata*—is a small tree of but little beauty, but its wood is tough, compact, and fine grained and much valued by wheelrights for the making of naves.

White or Rock Elm—*Ulmus Americana*—the most abundant of this genus, is much prized for its beauty. It attains a height of from eighty to a hundred feet and a diameter of from three to five feet. Its native home is in the fertile soil of the river banks. It divides into a great number of branches or forks near the ground and the diameter of its foliage is often from sixty to one hundred feet. It is much used for piles, foundations for mills and canal locks, and in other structures where it is continually under water. The wood is of a dark brown color, and is considered excellent for the construction of wagon beds and carriages.

The Gums.—These are useful trees with a wide distribution over both the high and the low lands of the State.

Black or Sour Gum—*Nyssa Sylvatica*—(called also *Tupelo*) grows in moist damp lands. The wood has its fibers interlaid so as to make it difficult to split and is, therefore, used largely for the hubs of wheels, hatters' blocks, and other articles requiring great tenacity.

Sweet Gum—*Liquidambar styraciflua*—is different in species from the preceding. It is found over all the southwestern part of the State, though not very abundantly. The wood, reddish in hue, is compact, fine grained, takes a high polish and is useful wherever toughness and solidity is required. Its beauty, when dressed, commends it to the favor of the furniture maker. The pretty star shaped leaves and the fine form of the masses of foliage, make the tree very desirable as an addition to ornamental planting. The leaves are fragrant and the bark exudes an aromatic, transparent gum, very grateful to the taste and possessing medicinal virtue. It is said to resist combustion longer than any other wood.

Hackberry—*Celtis occidentalis*—is a common tree throughout all that part of the State lying west of the Alleghenies, where it frequently attains a height of eighty feet and a diameter of from one to two feet. It is found on rich bottoms and river banks. The wood being compact, fine grained and very light, is elastic and very easily separated into "splits," which are sometimes used for the bottoms of chairs and served the Indians for making baskets. It is free from knots and is wrought with the greatest ease.

Hickory—*Carya*—is peculiar to North America, and is to be found in some of its varieties in every vale and on every hill and mountain of West Virginia. The general qualities of all these are similar. For use in the mechanical arts and for domestic purposes, Hickory is unusually valuable. For weight, strength, and tenacity of fiber, it has no superior. The woods of its different varieties are used for axle-trees, axe-handles, handles of carpenters' tools, screws, cogs of mill-wheels, the frames of chairs, whip-handles, gun stocks, and rake-teeth. For making hoops nothing else is equal to the young stalks of hickory.

Shell-Bark Hickory—*Carya alba*—attains a height of a hundred feet and a diameter of from two to two and a half feet. In addition to its value as a wood, it is highly prized for its white, thin-shelled, well-flavored nuts, surpassed only by those of the pecan.

Common White Heart Hickory—*Carya tomentosa.*—The wood of this tree is white to the core, hence the name, and is superior for uses requiring strength and flexibility. The bark is rough but not scaly.

Red Hickory—*Carya Porcina*—has a red bark with a thin white sap and is found chiefly on rich hillsides and river bottoms. It makes one of the finest of fuels, burning rapidly and giving out an intense heat. It is preferred for curing tobacco and bacon, not imparting so strong a taste of creosote. Its ashes are the richest of all in potash.

Pignut Hickory—*Carya amara*—sometimes called bitter nut, grows to

a height of a hundred feet and is widely disseminated; it has a very tough fiber and is best for split brooms—hence it is widely known as Broom Hickory.

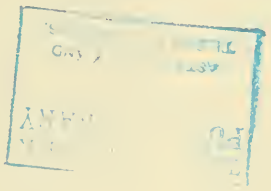
Ironwood—*Ostrya Virginica*—sometimes called Water Beech, grows in abundance along the rivers and at the base of the hills and mountains. It attains a height of from thirty to forty feet and is usually sprangled or forked ten to twenty feet from the ground. When dry it is the hardest wood found in the State—hence its name "Ironwood." It is speckled, or somewhat curled, and would seem to be fitted for some kinds of furniture. It is also known as Hop Wood, or Lever Wood.

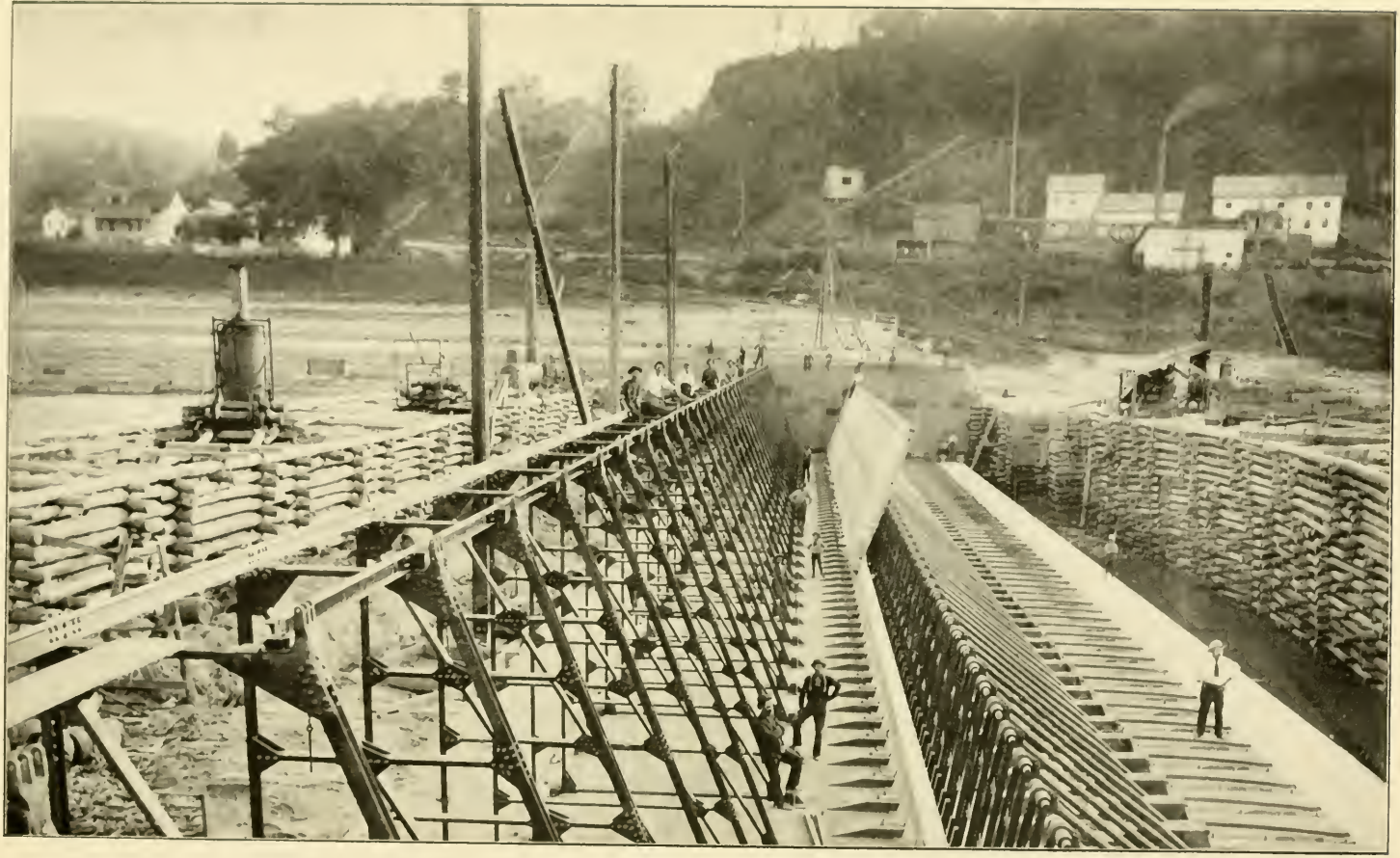
Linden, or Lime Tree—*Tilia Americana*—is a tree bearing various names. It is one of our most beautiful forest trees, attaining a height of from eighty to a hundred feet and a diameter of from two to three feet. Its wood, when seasoned, is of a light brown hue, is extremely tough, and when sawed into boards does not warp or twist. For this reason it is in great favor for wagon and carriage beds and is much used for door panels and the seats of chairs, and also for firkin staves. When green it is easily reduced to a pulp and is suitable for paper making. The twigs afford considerable nutriment, and in pioneer times were used as food for cattle when forage was scarce.

Locust—*Robinica Pseudacacia.* Of this there are two varieties—the red and the green, supposed to be caused by the difference of soil and situation. The tree attains a height of from seventy to a hundred feet, and a diameter of from two to three feet. The wood is hard, compact, and susceptible of a high polish. It is used by turners as a substitute for boxwood in the manufacture of bowls, salad spoons and similar ware. The wood is of a greenish yellow color marked with brown veins. Its most valuable property is resistance to decay which it possesses in a greater degree than almost any other wood. For this reason it is extensively used for posts and, when properly seasoned before being put in the ground, will last for forty years. It is also largely used in ship building, chiefly for pins and treenails.

Honey Locust—*Gleditschia triacanthos*—is distinguished by its thin foliage, thorny branches, and the profusion of its long honey-bearing pods much used for making beer and not unpalatable as a fruit. The tree often attains a height of from seventy to eighty feet and from two to three feet in diameter. The wood is very hard and splits with great difficulty. The grain is coarse and pores open, and as yet very little use has been made of it.

Maple (Hard Maple, Rock Maple, Sugar Tree)—*Acer saccharinum*—





CONSTRUCTING A LOCK AND DAM ON THE GREAT KANAWHA—(See p. 22.)

is a beautiful tree growing on rich lands to a height of a hundred feet and a diameter of two to three feet, though usually not so large. It occurs abundantly all over the State. The wood is bright, finely curled, tough and compact and used for mechanical purposes. It exhibits several accidental forms in the arrangement of its fiber, which are utilized in making beautiful articles of cabinet work and furniture, such as bedsteads, writing desks, inlaying mahogany and black walnut in bureaus, piano-fortes, and for veneering-slabs. The first of these is the *Curled Maple,* the undulations or medullary rays of this variety, are lustrous, and in one light appear darker, and in another lighter than the rest of the wood. The second is *Bird's-eye Maple.* This variety exhibits small whitish spots or eyes, not one-tenth of an inch in diameter, sometimes occurring a little way apart, and at others close together. The more numerous these spots, the more valuable the wood. They are seen only in old trees. The third is the *Variegated Maple Knot,* which presents an assemblage of shades, agreeably disposed, sometimes like Arabic letters, which make the wood well fitted for fancy work, and from its beauty and scarcity, it commands high prices. The fourth is called *Silver White Maple Knot,* because it shows a silvery luster by the arrangement of its fibers, and though more common than the others, is highly prized and used for the same purposes. The far-famed maple syrup and maple sugar are made from the sap of this tree. By the census returns of 1900, it appears that of the latter there were produced that year 141,550 pounds in the State, valued at $12,273.

Black Sugar Maple—*Acer nigrum*—resembles the above, somewhat, in foliage, but has a darker bark and a darker and coarser wood. It yields a saccharine sap, but this is not developed where the preceding variety prevails. It is often nearly a hundred feet high with a diameter of from one to two feet.

Red Maple—*Acer rubrum*—is found in all sections of the State and is everywhere welcomed as the harbinger of spring with its early blooming, bright scarlet-winged flowers, and is equally admired in the autumn when, touched by the frost, its leaves blaze with a splendor of crimson hues. It adorns the banks of many a West Virginia river.

White Silver Maple—*Acer dasycarpum*—in good situations, beautifies the mountain sides and sloping hills, spreading wide its wealth of foliage, its leaves green above and white beneath, and it is the prettiest shade and ornamental tree of the State. Its wood is of a fine texture, but is softer and lighter than that of any other variety. It is used among other pur-

poses for making wooden bowls. The inner bark is sometimes used, with copperas, for domestic dyeing and produces a black.

Red Mulberry—*Morus rubra*—is a beautiful broad leaved tree which has a wide diffusion over the State. It is frequently seventy feet high and two feet in diameter, though the height is often less with increased diameter. The wood is a yellow hue approaching lemon color, it is fine grained, compact and light, possesses strength and solidity, and is almost as durable as Locust. It is much used in the dock yards for ship building.

Oak—*Quercus*—the most numerous and valuable of all our forest trees. Of its twenty-two varieties found east of the Mississippi, sixteen grow in West Virginia where they are the "monarchs of the forest." They tower skyward from ninety to a hundred and twenty-five feet with a diameter of from one to six feet. Everywhere, from river bank to mountain top, they are to be seen, far and wide.

White Oak—*Quercus alba*—the most widely diffused, the greatest in size, the most pleasing in appearance, and the most useful in its application. It is characterized by a straight trunk, compact and rounded head, light, pleasing foliage, and clear, light colored bark. The uses of this variety are so many that it is recognized as the most valuable species. It is used for house-frames, mills, dams, vehicles, agricultural implements, coopers' ware, ship-building, and for all purposes where strength, durability, and elasticity are required. More than any other tree does it combine all the valuable properties found in timber. It is shipped from West Virginia all over the world.

Red Oak—*Quercus rubra*—is often as large, though not as plentiful, as the one last described; neither is it as straight and durable, while the bark is rough and the wood coarse and heavy. Its rigidity and comparative freedom from warping give to it a value for sills, joists, and studding. After the chestnut, it is the best shingle tree of our forests, and for staves for tobacco hogsheads and flour barrels, has no superior. The bark is valuable for tanning purposes.

Black Oak—*Quercus tinctoria*—has a deeply furrowed dark bark and leaves much lobed. The tree attains a height of a hundred feet and is frequently five feet in diameter. The wood is reddish and coarse grained but stronger than that last described. As a building material it is often used in place of white oak. It is much in demand for shingles, staves, and boards. The bark is rich in tannin, largely used in tanning, and is also the material from which is obtained the quercitron so largely used in dyeing and calico printing.

Chestnut Oak—*Quercus prinus*—is found all over the State growing on ridges and rocky hill-sides, and is very thrifty in good soil down even to the river banks. It is handsome because of its foliage, its leaves being serrated, and grows to a height of from sixty to ninety feet. It is used extensively for railroad ties and fence posts and furnishes a larger supply of tan-bark than any other tree.

Scarlet Oak—*Quercus Coccinea*—closely resembles the Black Oak, the chief external difference being in the leaf, which in this is more deeply lobed, is smooth on both sides and of a lighter green, turning to a bright scarlet after frost—hence the name.

Spanish Oak—*Quercus falcata*—a tree by no means abundant, attains to the height of a hundred and twenty feet. It is sometimes called Turkey Oak, from a fancied resemblance of its leaf, with its three divisions, to the track of the turkey. It is found chiefly on low bottom lands. The bark is rough and deeply furrowed; the trunk usually without limbs save the spreading crown top. The wood is reddish and coarse grained, and not very durable. Its bark is rich in tannin for which it is greatly valued.

Pin Oak—*Quercus Palustris*—is a tree of medium size, usually found on the low lands, but often on the sloping hills. The wood is hard, heavy, and coarse, but from its medullary plates it shows beautiful graining, when cut across, or obliquely to the fibers. It is used to some extent in the manufacture of furniture.

Post Oak (**Yellow Oak**)—*Quercus obrusiloba*—is a tree of wide diffusion, growing on uplands and on dry, thin, gravelly soil—a tree with timber not so elastic as the White Oak, but far more durable. It is largely used for fence posts and railroad ties, and is highly valued by wheelwrights, coopers, and ship-builders.

Laurel Oak—*Quercus Laurifolia*—grows to a height of fifty or sixty feet, the limbs extending well down to the ground, the leaves being fleshy, lanceolate, and having the dark green color of the laurel—hence the name. It has a wide area, but is nowhere abundant. The wood of this species is the hardest of all the oaks.

Sassafras—*Sassafras officinale.* This is, on the west side of the Alleghenies, often a tree of eighty feet in height, with a diameter of two feet. The wood has a reddish cast, a rather porous fiber, is brittle and breaks easily. Medicinally, the wood, roots, and bark of the Sassafras are considered to be an excellent stimulant and sudorific. The bark and pith of the young twigs abound in a mucilage, very pure. "Sassafras tea," a decoc-

tion made by boiling the roots, has been long popular as a blood purifier in West Virginia.

Sour Wood—*Oxydendrum arboreum*—is a tree of widely extended area between the Ohio river and the Allegheny mountains growing often to the height of sixty feet with a diameter of from twelve to eighteen inches. It has a large proportion of sap-wood which is white, soft, and the fibers strongly interlocked. The heart-wood is of a pretty, pale pink color. It is not sufficiently abundant to make a timber of importance.

Sycamore (Buttonwood)—*Platanus occidentalis,* once the largest of all the forest trees, often attains a height of one hundred and twenty feet. George Washington, at the mouth of the Great Kanawha river, now in Mason county, on the 4th of November, 1770, saw a Sycamore "of a most extraordinary size; it measuring three feet from the ground, forty-five feet round, lacking two inches." Continuing, he says: "and not fifty yards from it was another thirty-five feet round." Steven Sewell and Jacob Marlin, the first settlers on Greenbrier river, dwelt for two or three years in the cavity of one of these trees which stood on the site of the present town of Marlinton, in Pocahontas county; and the Pringle brothers, John and Samuel,—the first white settlers on Buckhannon river, had long a similar place of abode. It grows along all the principal river valleys, but is rarely seen on the uplands. The wood is susceptible of a very high polish, and the grain in many trees is wavy and strikingly beautiful. It is extensively used in furniture making, especially for stand and table tops.

Tulip Tree (Poplar)—*Liriodendron tulipifera*—is unsurpassed, perhaps unequalled by any other tree in the American forest. Majestic in size, graceful in form—the proportions of a giant clad in the vestments of a queen. Mighty trunk and stalwart limbs, softened into gentleness by a foliage dense, beautiful and singularly unique, and adorned with a profusion of yellow tulip-shaped flowers—Hercules masquerading in the graceful drapery of Omphale—a combination of size, strength, grace and delicacy, presented by no other tree of the forest. Towering to a hundred feet—eighty to the first limb—its diameter is often six to eight feet. Churches have been built from a single tree. The heart-wood long resists the action of the atmosphere and hence it is used for "weather-boarding," the outer covering or siding of frame buildings. Mechanics distinguish three kinds, "White," "Blue" and "Yellow;" these varieties are doubtless due to the soil. The latter is most valuable and its uses far too numerous to mention here. Its exportation to the Northern States and to Europe, in logs, sawed timber, and

LOCK AND DAM NO. 6, GREAT KANAWHA RIVER—View four miles below Charleston—(See p. 22.)

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lumber, has attained large proportions. The bark of the tree is considered by some as hardly inferior, as an antiseptic and tonic to the Cinchonia.

WALNUT—*Juglans.*—Of the Walnut, but two species are found in the State—the "black" being a Southern tree, the "white" belonging farther north, but both growing here, side by side.

Black Walnut—*Juglans nigra*—here grows to a great size, a diameter of from five to seven feet being attained. It occurs singly, never grouped in large bodies. It is sought largely for cabinet work and is removed from the forest *in toto,* roots and all. The wood is of a dark brown color, strong and tenacious with fine grain frequently curled; it takes a fine polish, is largely used for the interior finishing of dwellings, and in making the finer kinds of furniture, counters, railings, gunstocks, picture frames and coffins. The foliage is handsome and it makes a fine shade tree. The leaves are highly aromatic and the nut, which is of annual abundance, is rich and sweet. The thick husk of the nut is used in dyeing woolens.

White Walnut (Butternut)—*Juglans cinerea*—is a smaller tree than Black Walnut, with a smooth whitish bark and leaves of lively verdure. The wood is much lighter in color, having a reddish tinge. It is durable but not strong, and is used in some ornamental work. The bark is used for dying home-made woolens and the inner part yields a laxative extract. The nut, of an oblong oval shape, has a softer shell and sweeter kernel than that of the Black Walnut.

WILD CHERRY—*Prunus serotina*—is one of the most valuable timber trees of the State. It often attains a height of from seventy to ninety feet and a diameter of from two to four feet. It is widely distributed over the State. Its wood is a light red, compact, and finely grained, and takes a polish as fine as that of mahogany or rosewood. With age and proper treatment, it will compare in polish with any other wood. The antique—"old-fashioned"—furniture of the shops, now so highly prized by many persons, is made from it. The wood is almost entirely used for cabinet work.

THE EVERGREEN FOREST TREES.

PINES—*Pinus.*—On the West Virginia highlands many species of evergreens have their home and these cover more than three million acres. They include nearly all the species found in the United States east of the Rocky mountains, and those most valuable for lumber and other uses to which they are applied. Of these we make brief mention.

White Pine—*Pinus strobus*—is the greatest timber tree of the North,

the habitat of which stretches southward following the line of the Appalachian Mountain System down through the Allegheny Highland of West Virginia, above an elevation of two thousand feet, where there are large bodies of this timber hitherto untouched because of its inaccessibility. It is the tallest tree of the State. The bark, except upon very old trees, is smooth. The wood, though lacking in strength and decaying rapidly when exposed, is so readily worked and receives paint so well that it is adapted to a wide range of uses, too numerous to mention here. The Census Report for 1900 states that "In West Virginia there is quite a body of untouched White Pine in the most elevated region of the State."

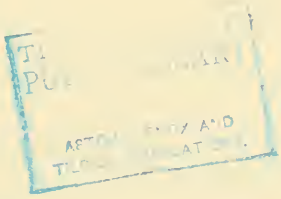
Yellow Pine—*Pinus nitis*—is from sixty to ninety feet high with a diameter of from twenty to forty-eight inches and grows on high ground, principally abounding on the poor sandstone soil of the hills and mountains. It is scattered over the greater portion of the State and is an important source of revenue. The wood is hard and smooth and is extensively used for flooring, wainscoting and ceiling. Large quantities are shipped out of the State.

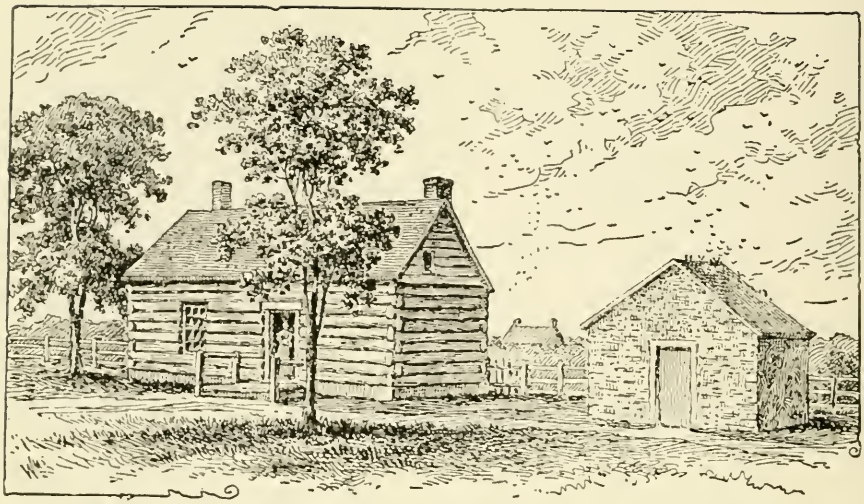
Pitch Pine—*Pinus rigida*—has its home on thin sandy ridges; it is rarely more than sixty feet in height, is rich in turpentine, but not very abundant. The bark is very rough and dark, hence the name. The wood is very hard, and is closely related to the preceding species, but the trees not so large.

Hemlock Spruce (Yew Pine)—*Abies canadenis*—is a tree of vast importance in West Virginia. It is found on the flats and rich mountain sides, where it attains a height of a hundred feet and a diameter of several feet. It grows in the most inaccessible portions of the State and as yet but little use has been made of the timber which will, in the future, supply millions of feet of lumber. One of the great economic values of Hemlock is its bark, which is largely used in tanning leather.

Black Spruce (Black Fir)—*Abies nigra*—flourishes along the banks of streams and steep mountain sides in the higher and colder parts of the State, where it attains a height of seventy or eighty feet. It is in reality a Fir. Its wood is strong, light and elastic, and is much used on sea-going vessels for yards and topmasts. It is to be one of the most important forest trees in the future timber interests of the State.

Cedar—*Cedrus.*—The two varieties of Cedars, so called in West Virginia, are not Cedar at all. The first and most important of these, known as Red Cedar—*Juniperus Virginiana*—is a species of Juniper. The second known as White Cedar—*Cedrus alba*—is a cypress and of little economic value. The first attains a height of sixty to ninety feet, and a diameter of two





RESIDENCE OF JAMES RUMSEY, THE INVENTOR OF THE STEAMBOAT—Shepherdstown, Jefferson County—(See p. 17.)
From a drawing made by Henry Howe in 1843.

RUINS OF AN OLD NORBOURNE PARISH CHURCH—Near Charles Town, Jefferson County—(See p. 173.)

feet or more. It flourishes alike on river banks and mountain tops, and few other forest trees have a wider diffusion in the State than this. It furnishes one of the most valuable of all woods. It is compact, fine grained, light, and exceedingly durable. The heart-wood which furnishes the timber has a pretty red color, and is peculiar for its strong, pleasant odor. It receives a high polish and is more highly esteemed than any other for hollow ware—buckets, churns, firkins, and similar articles. It is peculiarly fitted for fence posts, lasting, as it does, for a generation.

SMALL TREES AND SHRUBS.

In addition to the foregoing there are many small trees and shrubs, which, though generally diffused over the State, have, because of their small size or inferior wood, but little commercial value; among these there is infinite variety in form, foliage, and flower, thus adding beauty to the landscape, together with much local and domestic use in the mechanical arts. Some of these are to be mentioned briefly.

Holly.—*Ilex opaca*—is one of the prettiest of our evergreens. It grows mainly on mountain streams in a gravelly or sandy soil, in some instances attaining a height of from twenty to thirty feet and a diameter, sometimes, though rarely, exceeding one foot. The wood is white, compact, and when seasoned, very hard. Its principal use is for inlaying Mahogany turning into small boxes for druggists, for small screws, and for pulleys for ships.

Big Laurel— *Rhododendron*—and the Mountain Ivy (Calico bush)—*Kalmia latifolia*—have both been mentioned in connection with the State flower. See *ante* page 107.

Fringe Tree (Old Man's Beard)—*Chionanthus Virginica*—is often seen along the river banks and in flat rich lands, draped with plumes of snow-white, fringe-like flowers.

Chinquapin—*Castanea pumila*—appears to be a dwarf variety of the chestnut and is found in many counties of the State. It is usually a shrub, from six to twenty feet high, branching thickly from the ground and bearing profusely a small edible nut enclosed in a prickly bur similar to that of the chestnut.

Elder—*Sambucis canadensis*—is a showy shrub with immense flat cymes of white flowers appearing in June, beautifying river banks, hedges, and fence rows, to be succeeded in August by heavy black-purple, crimson-juiced berries, much used in the manufacture of wine and jellies.

Red Bud (Judas Tree)—*Cercis canadenis*—is widely diffused and its

wealth of purple flowers coming out before the leaves appear, make it an object of beauty.

White Willow—*Salix alba*—fringes the banks of nearly all the rivers and many of the smaller streams of the State. It attains a height of thirty to forty feet and is much used in the manufacture of baskets.

Spicewood—*Lindera Benzoin*—grows in the rich bottom lands of the rivers and along the base of the hills. Its wood is highly aromatic.

Common Sumac — *Rhus galbra*—is widely diffused, with its smooth stock three to eight feet high; its yellowish green flowers in June; and its autumnal fruit in dense clusters of richest crimson berries, it covers many a West Virginia hillside.

Staghorn Sumac—*Rhus typhina*—so called from the crumpled, bent appearance of its limbs, is the largest species of sumac, sometimes reaching thirty feet in height. It bears clusters of crimson berries and the traveller beholds its red leaves of autumn, far away.

Leatherwood—*Dirca palustris*—is so called from its tough bark, which was used by the Indians for thongs and cordage. Its wood is soft, white and brittle.

Persimmon—*Diospyrus Virginiana*—grows to a height of sixty feet. The wood is dark and hard. It bears a yellow, pulpy fruit, exceedingly acid, and only edible after being touched by the frost.

Hazel Nut—*Corylus Americana*—is common in the hedges, along the highways, and fence rows in many portions of the State. It is of the same family as the filbert nuts of market, which it closely approximates in size and flavor.

NOTE.—The native fruit trees of West Virginia will be described under the head of Horticulture.

SOME OF THE MEDICINAL PLANTS OF WEST VIRGINIA.

The flora of West Virginia is rich in Medicinal Plants which flourish in every part of the State. The following list of these was prepared by a committee of Wheeling physicians for the State Medical Society, in the years from 1867 to 1871. The first name is that commonly used in West Virginia: the second, the term employed by the botanist, Gray.

1. Milfoil—*Achillea millefolium.*
2. Sweet Flag—*Acorus calamus.*
3. Unicorn (Cholic root)—*Aletris farinosa.*

4. Smooth Alder—*Alnus serrulata.*
5. Dogbane—*Apocynum androsaemifolium.*
6. Master root—*Archangelica atropurpurea.*
7. Common Wormwood—*Artemisia absinthium.*
8. Dwarf Elder—*Aralia hispida.*
9. Indian Turnip—*Arisaema triphyllum.*
10. Virginia Snake Root—*Aristolochia serpentaria.*
11. Wild Ginger—*Asarum Canadense.*
12. Common Milkweed—*Asclepias Cornuti.*
13. Swamp Milkweed—*Asclepias incarnata.*
14. Pleurisy Root—*Asclepias tuberosa.*
15. Wild Indigo—*Baptisia tinctoria.*
16. Wild Senna—*Cassia Marilandica.*
17. New Jersey Tea—*Ceanothus Americanus.*
18. Pipsissewa—*Chimaphila umbellata.*
19. Jerusalem Oak—*Chehopodium Botrys.*
20. Sweet Fern—*Comptonia asplenifolia.*
21. Dogwood—*Cornus florida.*
22. Turkey Corn—*Corydalis formosa.*
23. Small Yellow Ladies Slipper—*Cypripedium parviflorum.*
24. Large Yellow Ladies Slipper—*Cypripedium pubescens.*
25. Jamestown Weed—*Datura stramonium.*
26. Wild Carrot—*Daucus carota.*
27. Trailing Arbutus—*Epigaea repens.*
28. Boneset—*Eupatorium perfoliatum.*
29. Goose Grass—*Galium aparine.*
30. Creeping Winter Green—*Gaultheria procumbens.*
31. Gentian Blue—*Gentiana puberula.*
32. Spotted Crane's Bill—*Geranium maculatum.*
33. Liverwort—*Hepatica triloba.*
34. Yellow Root—*Hydrastis Canadensis.*
35. Witch Hazel—*Hamamaelis Virginiana.*
36. Savin—*Juniperus Sabina.*
37. Elecampane—*Inula Helenium.*
38. Skunk Cabbage—*Symplocarpus foetidus.*
39. Butternut—*Juglans cinerea.*
40. Burdock—*Lappa officinalis.*
41. Button Snake Root—*Liatris spicata.*
42. Tulip Tree (Poplar)—*Liriodendron tulipifera.*

43. Indian Tobacco—*Lobelia inflata.*
44. Spicewood—*Lindera benzoin.*
45. Horehound—*Marrubium vulgare.*
46. Spearmint—*Mentha viridis.*
47. Horsemint—*Monarda punctata.*
48. Ground Ivy.—*Nepeta Glechoma.*
49. White Water Lily—*Nymphaea odorata.*
50. Beech Drops—*Conopholis Americana.*
51. Ginseng—*Aralia quinquefolia.*
52. White Pine—*Pinus strobus.*
53. Poke Weed—*Phytolaccha decandra.*
54. Seneca Snake Root—*Polygala Senega.*
55. May Apple—*Podophyllum peltatum.*
56. Wild Cherry—*Prunus Serotina.*
57. Trefoil—*Ptelea trifoliata.*
58. Small Soloman's Seal—*Polygonatum biflorum.*
59. Crowfoot—*Ranunculus bulbosus.*
60. Curled Dock—*Rumex crispus.*
61. Blackberry—*Rubus villosus.*
62. White Willow—*Salix alba.*
63. American Centaury—*Sabbatia angularis.*
64. Sassafras—*Sassafras officinale.*
65. Bitter Sweet—*Solanum dulcamara.*
66. Elder—*Sambucus canadensis.*
67. Blood Root—*Sanguinaria canadensis.*
68. Dandelion—*Taraxicum dens leonis.*
69. High Cranberry—*Viburnum opulus.*
70. Mullein—*Verbascum thapsus.*
71. White Hellebore—*Veratrum viride.*
72. Culver's Root—*Veronica Virginica.*
73. Prickly Ash—*Zanthoxylum Americanum.*
74. Black Snake Root—*Cimicifuga recemosa.*
75. Bugle Weed—*Lycopus Virginicus.*
76. Narrow Leaved Dock—*Rumex conglomeratus.*

THE TIMBER AND LUMBER INTERESTS OF WEST VIRGINIA.

Having noticed at some extent the forestry of West Virginia, it is now our purpose to present with more brevity the Timber and Lumber interests of the State. Among its natural elements of wealth, no other is more conspicuous, so directly available and so evenly distributed, as her magnifient forests, which, before the ring of the woodman's axe first resounded west of the Alleghenies, shaded almost every square rod of dry land of her territory.

Destroying the Forests.—The early settlers needed bread, and mother earth must supply it for there was no other source from which it could come. This meant the clearing of land and the consequent destruction of the forest for there was no market for its products. Its removal from the "improvement" was one of great labor but the process was simple. This work was usually done in the winter. First the underbrush was grubbed and piled in heaps; then the fallen timber—logs already down—was cut into proper lengths to be borne or drawn together; timber to be split for rails was felled and chopped into "rail-cuts," eleven feet long, which were drawn along the line where the fences were to be built; the smaller timber, say all under a foot in diameter, was now cut down and chopped into suitable lengths for handling; next the "brush-heaps" were burned, and, this done, all the neighbors for miles around were invited to the "log rolling;" from ten to thirty assembled at early morning, in the "clearing;" a captain or leader was chosen; the men with strong hand-spikes, made usually from the dogwood of the hills, rushed to work with a hurrah; there were trials of strength and the logs, great and small, were rolled or carried, and "heaps" constructed, one after another, until this had extended over the entire "clearing" and the work was done. Then these were burned. But there still stood, high over all, the giants of the forest—great towering oaks, poplars, walnuts, maples, pines and hickories—all to be "deadened" that the shade of their foliage might be destroyed, and when "the leaves were large as a squirrel's ear" the oaks were "belted" deeply through the "sap" and the hickories and others "peeled" around, and then left to die and decay, fall and be burned years after. Thus was destroyed the timber on millions of acres of West Virginia forests, which would now be worth millions of dollars—destroyed to make room for the grain field and the herd, the support of the families of the early settlers.

From Worthlessness to Great Value:—The first reference to an interest of any kind in the economic value of that Virginia forest on the west side of the Alleghenies, is found in the "Instructions" of the Ohio Company given to Christopher Gist, its agent and explorer, under date of July 16, 1751, "To observe where there is plenty and where the timber is scarce." This was at the time he was setting out to explore the region between the Allegheny and Monongahela rivers.

Twenty-five years ago, a timid remark was occasionally ventured by old residents, that our timber might some day be of value; but they scarcely dreamed that within a few years, West Virginia timber would be an indispensible article of consumption in mechanical industries on both sides of the Atlantic ocean, and that buyers would be traversing the State, in an effort to purchase it for the markets of the world.

The Present Lumber Business of the State :—In no other way can a business interest be presented so forcibly as by figures, and these are, therefore, now to be introduced that the present condition and extent of the timber and lumber business of the State may be more readily seen. The latest available statistics show there were 950 establishments having a capital of $10,421,570.00; with 5,327 employees whose earnings aggregated $1,828,558.00; the cost of material being $5,584,717.00, and the value of all products $10,612,837.00. Every one of these items has more than doubled in the last ten years.

There were 407 Logging Camps with a capital of $4,757,919.00; having 45 employees whose salaries aggregated $29,484.00; and 2,784 wage earners whose earnings amounted to $898,387.00, with miscellaneous expenses of $587,554.00; cost of keeping animals, $471,459.00; and contract work aggregating $316,095.00—a total of $1,385,039.00; with a production in saw-logs and other items valued at $3,333,531.00.

There were 929 Saw-mills with a capital of $5,293,975.00; having 240 employees whose salaries aggregated $194,639.00; and 4,823 wage earners whose earnings amounted to $1,657,436.00; the miscellaneous expenses amounted to $319,111.00; the total cost of material to $4,763,929.00; and the total value of all products being $9,390,818.00.

There were 179 Plaining Mills with a capital of $1,173,349.00; having 41 employees whose salaries aggregate $28,681.00; and 872 wage earners, whose earnings amounted to $347,855.00; miscellaneous expenses were $41,170.00; the cost of material $1,882,790.00; the total value of all products being $2,583,799.00.

A LAMP BLACK FACTORY—Calhoun County—(See p. 321.)
Covers eight acres; production, 6000 pounds per day. Largest establishment of its kind in the world.

From the above it is seen that in the Logging Camps, Saw Mills, and Planing Mills, was an invested capital of $11,225,243.00; employees numbering 8,805, whose earnings amounted to $3,156,482.00, and a total valuation of products of $15,476,271.00.

Area and Value of West Virginia Forests:—Mr. Henry Gannett, the Expert Special Agent of the Census Bureau on Lumber, assisted by J. E. Winchell, Chief of Section, has the following regarding West Virginia, on page 837 of Vol. IX, Part III, of the Report of the Census for 1900.

"The entire area of West Virginia lies on the Allegheny Plateau, which in a general way, slopes from the east line of the State northwestward to the Ohio and Big Sandy rivers. The higher parts of this plateau are timbered with white pine, hemlock, and hard woods, while lower down the slopes the proportion of hard woods increases, and the lower slopes were originally covered with forests of these species. Lumbering has been most active in the western part of the State near the Ohio river, where considerable areas have been cleared for cultivation. * * * *

"Until recently West Virginia has not been important in the lumber industry, but during the last ten years the value of its product has more than doubled. The principal species cut are hard woods, and of these, white oak and poplar chiefly.

"The wooded area of West Virginia is estimated at 18,400 square miles, or 73 per cent of the area of the State, and most of this is occupied by timber of merchantable size and quantity."

An Observation:—It is thus seen that the forest area of West Virginia is estimated at 18,400 square miles, which is equal to 11,776,000 acres. By the same authority, the quantity of merchantable timber per acre, on lands owned by lumbermen in the State is given at 5,200 feet; and if this be taken as the quantity per acre for the whole forest acreage of the State, as given above, it appears that there were, in 1900, 61,235,200,000 feet of timber still standing in the State; and this at $20.00 per thousand feet was worth $1,224,704,000.00—more than twelve hundred millions of dollars.

So far as the present generation is concerned, the supply is inexhaustible, thus assuring the continuance of a great industry which must very soon grow to larger dimensions than it has yet assumed.

CLIMATOLOGY OF WEST VIRGINIA.

That land is a favored one which enjoys the happy mean between cold and heat, drought and moisture, arctic sterility and tropical exhuberance; a land in which energies are stimulated by the bracing breath of a temperate atmosphere, cool enough to inspire physical action and elastic vigor; warm enough to assure the rewards of toil by the certainties of healthful maturity and abundant yield as returns for the labor bestowed, carried on under the exhilarating conditions of a genial air, a friendly sun, and a responsive soil. Such are the conditions which West Virginia enjoys, with no portion of it either so cold, on the one hand, or so hot, on the other, as to obstruct work at any season of the year; while at the same time presenting most remarkable apposition of the lower tempered atmosphere of the North and the balmy breath of the sub-tropical South.

Speaking of the climate of a region we mean its pervailing winds, its moisture and its temperature. Our inquiry regarding these is now directed to West Virginia. This information is necessary to a proper understanding of the agricultural, horticultural, and live stock interests of the State. Certain it is that the prosperity of these industries depends upon a fertile soil and a favorable climate, the latter being by far the most important. Of this we shall, therefore, learn before considering the interests so entirely dependent upon it.

The earth is divided into zones, the latitudinal limits of which are determined by the inclination of the earth's axis to the plane of its orbit. These conditions determine the character of the several zones, influenced by local and general causes, such as topography, altitude, prevailing winds, moisture and heat. We shall briefly inquire how these effect West Virginia and the conditions they produce here.

Moisture Bearing Winds—Its Precipitation:—The warm waters of the Indian ocean are by the Japan Current borne across the North Pacific and dispersed along the western coast of North America. From here, vapor-laden winds begin to blow eastward. But these, from the Oregon-Washington coast, are deprived of their moisture by being forced over the high altitudes of the Rocky Mountains in Idaho, Wyoming, Utah, and Montana, and reaching the highlands north of the Mississippi Valley as *dry* winds, pass off by the Lakes to the Gulf of St. Lawrence. So, too, the rain-bearing winds

originating along the California-Mexico coast lose their moisture while passing over the table-lands of Nevada and Arizona and the Bolson de Mapimi and Plateau of Anahuac in Mexico, and then as *dry* winds follow the isothermals to the Gulf of Mexico.

Now, the Gulf of Mexico and the Arctic Sea are the positive and negative poles of a great battery which propels the alternating life currents through the highly favored Ohio Valley Region in which lies West Virginia, the Gulf being the great thermal basin—the reservoir—from which the western slope of the Appalachian System is watered. These Pacific winds that reach it dry, hover over it for a time and then, surcharged with moisture from its bosom, are wafted as Southwest winds across eastern Texas, over Louisiana and the Mississippi, eastward until they come in contact with the Cumberland mountains by which they are deflected until West Virginia is reached. Here they meet the Northeast wind, dry and cold, coming down from Hudson's Bay, along the western base of the Appalachian Highlands, and then a "conflict of elements" occurs. The cold dry currents come in contact with the warm moist currents from the southwest; condensation takes place and rain falls in such abundance over West Virginia that there is an annual precipitation of forty-five inches—a quantity sufficient for all needs. An inspection of the topography of the State will show by the immense number of perennial streams, that the rain-fall is not only abundant, but that it is uniformly distributed throughout the year. Indeed, West Virginia contributes a large proportion of the waters carried by the Ohio into the Mississippi; and then, in compliance with the laws of compensation, it passes back to the Gulf, whence it came, some of it to be again taken up by the southwest winds, and borne back to West Virginia to once more moisten and fertilize the soils of its whole extent. There is no such thing in West Virginia as a dry and a wet season. There may be, at times, an excess of rain or a brief period of drouth, but neither have periods of recurrence, and may not appear in a long series of years.

Freedom From Storms:—It is true that the contention of elements sometimes becomes sufficiently intense and violent at local points as to cause the thunder storms of summer resulting from an excess of heat and moisture and which usually extend over but small areas as incidental ills, with electrical display, wind-squalls, and hail. But these are only physical disturbances resulting from conditions which vastly promote the general good; for they themselves bring rain to moisten the land and refresh the vegetation of the summer months. These same benign elements—heat and moisture—have made the State a forest land, and a paradise of abundance

of grains, fruits, and vegetables, when the fertile lands are properly tilled. West Virginia has entire immunity from cyclones, tornadoes and hurricanes. None of these make paths strewn with death and wreck and ruin within her borders. Neither are there storm centers, whirlwind zones, nor tornado-swept areas in all her wide extent. Not since the coming of white men has a cyclone visited the region now within the State.

The Prevailing Winds:—The southwest winds prevail in West Virginia, but are much modified by the topography of the State. Here the recurring hills and vales, mountains and valleys, break up and deflect the currents hither and thither, until they seem to come from every point of the compass. Then, too, there is a never ending war of elements between the Southwest and Northeast winds that meet and mingle here, sometimes one and sometimes the other gaining the ascendency, for West Virginia is in the North Variable Wind Zone. Observations, extending over a series of years, made at Wheeling, in the Northern Pan-Handle of the State, show that Southwest winds prevailed 5,306 days, while Northeast winds held sway but 2,092 days.

The Temperature:—West Virginia has a continental climate, one, therefore subject to a wide range in temperature between the extremes of winter and summer. This, too, is influenced by altitude which ranges 4,535 feet as between the elevation of Harper's Ferry and the summit of Spruce Knob in Pendleton county—a total of nearly a mile. This gives a great variety to climate in different localities, but a very staple one to many places for a series of years. In passing from the banks of the Ohio eastward to the summits of the Alleghenies, the same gradations in climate, in soil, and in products appear. The State lies between the 37th and 40th degrees of north latitude; and is included within the isotherms of 50° and 55°; the 52nd degree passing centrally through it. These on the Plateau and Mountain Regions bend slightly to the southward, but the mean annual temperature of the State may be taken as 52.30°. At Wheeling it has been ascertained to be 51.64°; at Morgantown, 52.7°; at Lewisburg, 52.22°; and at Charleston, 54.27°. From this it appears that there is a difference of about three degrees between the mean temperature of the northern and that of the southern part of the State.

The Seasons:—All years are much alike in West Virginia. With November comes frost and chilly winds; December, January and February bring cold weather but the "HORRORS OF WINTER" are here unknown; March and April exhibit the characteristics of spring; May is the month of blossoming orchards; June comes with its wealth of roses; and then,

July, August, September and October are harvest months in field, garden and orchard.

Then comes November again with its indications of winter; then the plowshares of Jack Frost once more penetrating the earth prepare it to respond to the quickening influences of the gentle rains and almost tropical warmth of the summer months. On an average, there are one hundred and eighty days between the last damaging frost of spring and the first killing frost of autumn; the former occurs about the fifteenth of April and the latter about the fifteenth of October. Light and comparatively harmless frosts occur a little later in the spring and earlier in the autumn on the highlands, but there is in every season ample time to produce fully matured crops of every variety grown here. It has not happened once in fifty years that frost has, over any considerable portion of the State, seriously injured the corn crop. When spring is late, there is invariably a later fall or the warmth of summer is lengthened so as to afford time for the crops to mature.

In summer, the days are seldom or never hot except along the Ohio river and counties adjacent thereto; on the Cumberland Plateau and the Allegheny Highland the days throughout all the summer are pleasant, and the nights cool and refreshing, so much so, indeed, that two blankets are grateful to sleep under throughout the whole summer season. Are there protracted rain-falls? Yes, sometimes, for a day or two; but that "eternal drizzle" of the so-called milder climates of the sea-coast region is unknown here.

Concluding Observations:—Upon the whole, the impression produced by the climate of West Virginia upon the settlers from other regions, or the traveller accustomed to reason from cause to effect, is that here man has little or nothing to fear from the caprices of the elements, and the observance of the simple laws of nature cannot fail to secure health, long life, comfort, and abundant pecuniary success to the industrious tiller of the soil.

Thus it is that free alike from the extremes of heat and cold, of rain and drought, and at an elevation inaccessible to malaria, West Virginia throughout its whole extent, enjoys a climate unsurpassed, if equaled, by that of any other State. Indeed, not another area of equal extent exists in the Mississippi Valley so free from diseases of every kind and requiring so little from man or beast for the protection of health. Large numbers of gastric and pulmonary patients from other States annually resort to our highland air and mineral springs, here to recuperate the principal of life and

nurse their returning strength in the sports and pastimes of our streams and forests. Many permanent settlers who came here with health seriously impaired, have, after a few years, entirely recovered original vigor, and would not again exchange climate for any consideration.

There is more sunshine in West Virginia than in Florida and less snow-fall than in Ohio, Indiana or Illinois.

AGRICULTURE.*

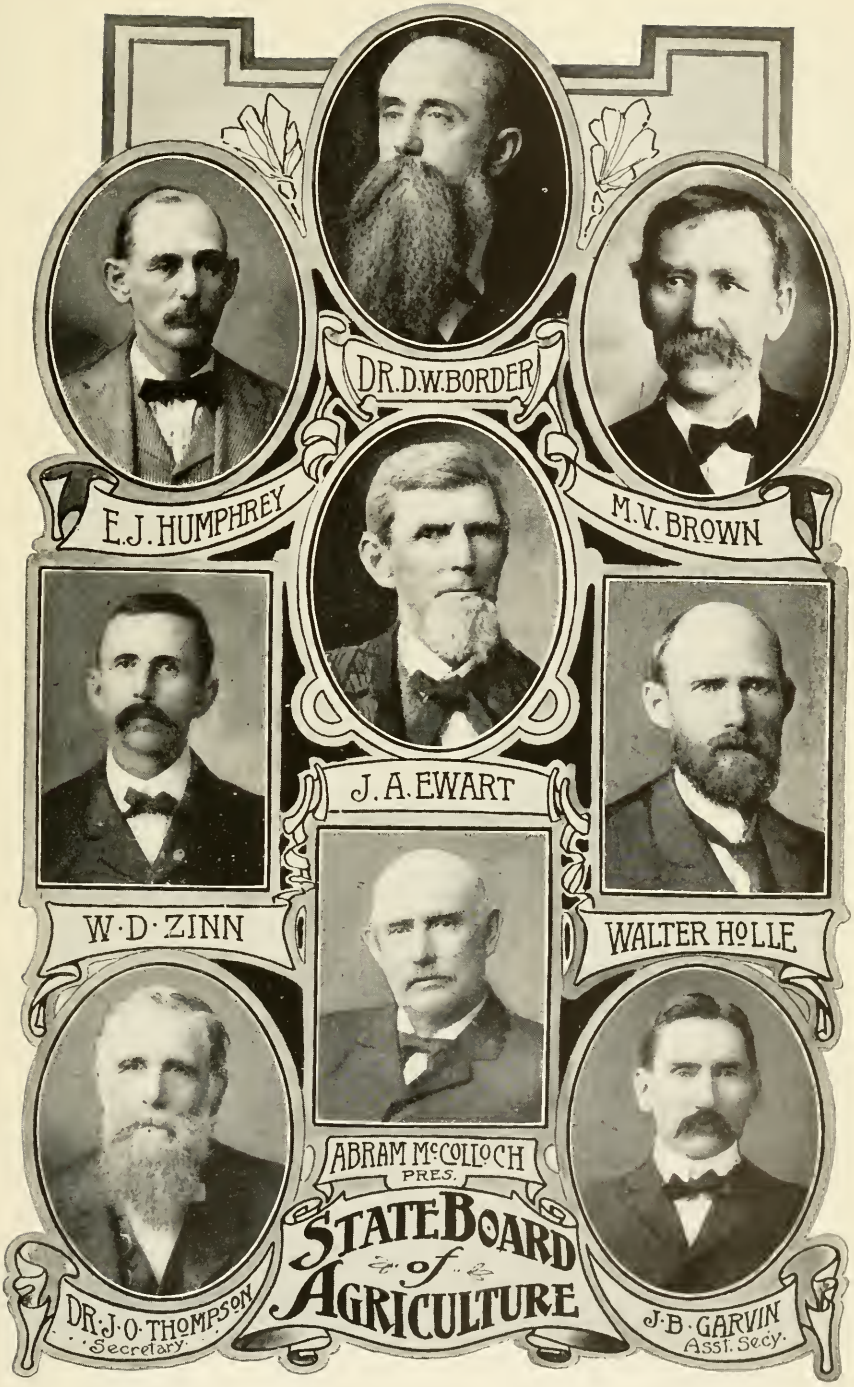
INTRODUCTORY—SOIL—EARLY HISTORY—PRODUCTS—STATISTICS—GARDENING—WEST VIRGINIA AGRICULTURAL EXPERIMENT STATION—AGRICULTURE IN THE WEST VIRGINIA UNIVERSITY.

Agriculture is a branch of industry coeval with the history of mankind; its connection with the general welfare of the nation is so intimate; its reciprocal bearing on manufactures is so immediate—admitted as it is to form both the base of prosperity and the power of the people; it is a branch of science, the prosperity of which, in all its resources, affects individuals of every order, and without it there could be no commerce. Realizing that all human life is dependent upon it, and that the earth would be nearly depopulated by a single year's failure, we are not surprised that nearly all the nations of the earth, from the remotest period, have maintained institutions pre-eminently calculated for the promotion of agriculture, honoring husbandry and encouraging the advancement of the science.

No other subject is more prominent in old mythology than this: Ceres, the daughter of Jupiter and the Roman goddess of Agriculture, grain, growing crops and harvests, was supposed to have her home in the famous wheat fields of Enna, in Cicily, and under the name of Demeter, in the mythology of the Greeks, she was scarcely less revered.

Agriculture is now fostered and encouraged by the nations on the continent of Europe and equally so in our own country. It is publicly taught in institutions designed for this special purpose, as well as in many colleges and universities, and the result has been that, as formerly, while the ancients encouraged agriculture and it received the attention of orators, and its praises and precepts were recited by the bards and sung by the poets, and

* For climatic conditions necessary to a successful agriculture in the State, see "Climatology of West Virginia," page 282.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monarchs participated in its labors, learning and agriculture went hand in hand, and some of the greatest genuses of the ages identified themselves with its promotion; so, in these latter years, when properly fostered and encouraged, it has received the attention of some of the greatest intellects and scholars, who have striven and are now laboring to throw more light upon this grand art of rendering mankind happy, wealthy and powerful. All honor to them.

THE SOILS OF THE STATE.

It has been said that the chief elements of a successful Agriculture are a genial climate and a fertile soil. The former has just been noticed. Soil, sunlight and water are the great essentials to the production of the bread, meats, and fruits that feed the human race. West Virginia is abundantly blessed with these elements. She is a land of sunshine, of perennial springs, flowing streams, and an annual rainfall of forty-five inches distributed over her surface.

HISTORICAL NOTES—THE BEGINNING OF AGRICULTURE IN THE STATE.

From the subject of the soil we pass to speak of the beginning of Agriculture in West Virginia. The first settlements west of the Blue Ridge were made in Orange county, which then extended indefinitely over the Virginia frontier, so as to include all of West Virginia. But in 1738, that part of it west of the Blue Ridge was erected into two counties—Frederick and Augusta—so named in honor of Frederick, Prince of Wales, and his highly esteemed consort, Augusta of Saxe-Gotha, who died young, sincerely lamented by the English nation. Glodsmith's "Threnodia Augustalis" was written as a monody on her death. Frederick county embraced all northern West Virginia and extended from the Blue Ridge to the Great Lakes, its seat of justice being Winchester in the Shenandoah Valley. All the southern part of the present State was included in the county of Augusta, the western limit of which was afterward defined as the Mississippi river, its seat of justice being Staunton, likewise in the Shenandoah Valley. From these two all of the fifty-five counties of the State have been formed.

The earliest tillers of the soil of West Virginia were the Indians. In 1671, Thomas Batts and five companions, the first men who trod the soil of the State, came from the mouth of the Appomattox river and on the mountains in the present counties of Greenbrier and Fayette found "great grassy meadows" and there Meadow river and Meadow creek continue to flow.

Three days later they were at Kanawha Falls, where, says their journal, "We found Indian fields with corn stalks in them and understood afterwards, three Mo-he-tans (Mohegans) had lived there not long before." This is the first mention of native grasses and the cultivation of corn within West Virginia and that was two hundred and thirty-three years ago.

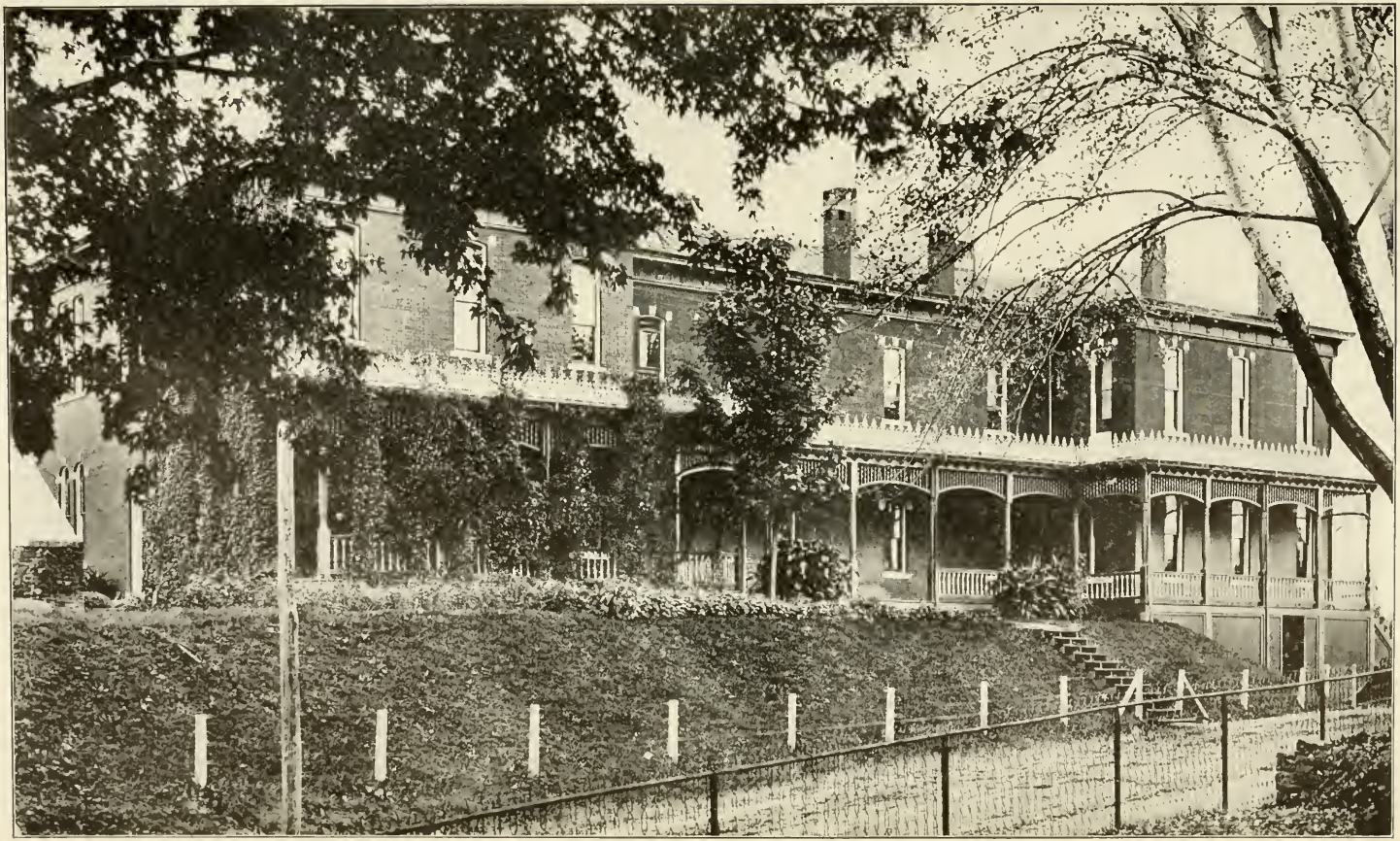
On William Mayo's "Map of the Northern Neck of Virginia," made for Thomas, Lord Fairfax, in 1737, the lands along the Upper Potomac and the South Branch thereof are marked "Old Shawnee Fields Deserted." Here, then, for an indefinite time—may be centuries—the Indians were cultivating corn in what are now the counties of Hampshire and Hardy. In 1744, Isaac Van Metre, with his family, settled on the "Indian Old Fields" just above the "Trough" of the South Branch, now in the last named county, where he began the cultivation of these lands—an occupation which is still continued by his descendents.

The Eastern Pan-Handle is the old part of West Virginia. Here, in 1747, young George Washington was surveying lands for Lord Fairfax, and on the 14th of March travelled sixteen miles to Captain Isaac Pennington's. 'The land exceeding rich & fertile all ye way produces abundance of Grain, Hemp, Tobacco, &c." On the 7th of April following he was at the "Indian Old Fields" of the South Branch where, in company with Lord Fairfax, he walked over this fertile land which was then surveyed for his lordship.

In 1751, when Christopher Gist was exploring the region between the Monongahela and the Great Kanawha rivers for the Ohio Company, he found in many sections an abundance of native white clover, thus showing that over West Virginia it was indigenous before the coming of white men. The settlers along the South Branch were now cultivating wheat and rye, and about this time they introduced the red clover, much to the dismay of the Indians, who believed that the white men had dyed its pretty trefoil in blood.

The first county fair in the State was authorized by the Virginia House of Burgesses in the year 1766—seventh of the reign of George III—to be annually "kept and held" at Mecklenburg—now Shepherdstown—on the second Wednesdays in June and November because it "will be commodious to the inhabitants." The object was the "vending and sale of all cattle, victuals, provisions, goods, wares, and merchandise whatsoever." For two days before and two after these fairs, all persons with their property were exempt from arrests and attachments.

In 1768 David Morgan, his brother, Zackwell, and those who came with



WEST VIRGINIA AGRICULTURAL EXPERIMENT STATION BUILDING—West Virginia University—(See p. 308.)

PUBLIC L...
ASTOR, LENOX AND
TILDEN FOUNDATIONS

them planted the first corn in the upper valley of the Monongahela, probably on the site of the present West Virginia University buildings.

In the year 1769 Colonel John Stewart came over the Allegheny mountains, and on the rich lands near where Lewisburg now stands, found William Hamilton cultivating the first acre of corn ever planted in the Greenbrier Valley.

In 1771 Ebenezer Zane planted on what is now Market street, Wheeling, the first acre of corn ever cultivated by a white man on the banks of the Ohio river south of Pittsburg. From his hands the first wheat was sown on "Wheeling Flats" the next year. And before the beginning of the Revolution, he and his brother had under cultivation, here and on Wheeling Island, from twenty to thirty acres in corn, wheat and other cereals. Here the settlers, far and near, provided themselves with grain for seed and they often bore it away on their backs.

In 1774 Leonard Morris, the first permanent settler on the Great Kanawha river, was cultivating *corn* on the land on which the town of Marmet, in Kanawha county, now stands. On the 12th of July of the same year, as William Robinson, Thomas Hellen, and Coleman Brown were pulling *flax* in a field on the banks of the West Fork river, opposite the mouth of Simpson's creek, now in Harrison county, they were attacked by a party of Indians under Logan, the celebrated Mingo chief. Brown was killed and the others carried into captivity. In 1774 John Minear led a little colony into the valley of Cheat river and on the "Horse Shoe Bend," where St. George, the seat of justice of Tucker county now stands, cabins were reared and the next spring each settler planted for himself a little field of *corn,* the first ever planted on Cheat river.

When the Revolution was past, the settlers west of the Alleghenies, in the region most free from Indian incursion, began to produce crops of wheat, oats, rye and potatoes, with such garden vegetables as were then grown on the western border; and when in 1795, the Indian wars were ended the clearings were enlarged and the fields extended, and soon a surplus of grain was produced. If this was of rye it was manufactured into "Old Monongahela Rye Whiskey," but if it was of other grains, then a market was found down the Ohio, whence it was taken in rude boats—bateaux or the old time broad-horn.

In 1808 Lewis Summers, afterward a distinguished jurist, passed down the Great Kanawha and up the Ohio and on the bottom lands along both streams the *corn* was looking well—six to seven feet high in June."

We now reach an important event in the agricultural history of the

State. This was the appearance, in 1808, of the *Farmers' Repository,* the fourth newspaper published in West Virginia, and the first periodical devoted to agriculture, west of the Blue Ridge. It was printed at Charles Town, in Jefferson county. Such were the beginnings of agriculture in West Virginia.

THE PROGRESS OF AGRICULTURE.

Nearly all the clearing and improvement of lands in the State previously to the year 1800, were made by men whose families found protection in frontier forts from the scalping knife and tomahawk of the barbarian; and when this warfare was ended, the frontiersman went forth to the conquest of the wilderness not with the rifle as before, but now with the axe, that he might make a home for himself and those dependent upon him. How well he succeeded, let a million West Virginians of to-day answer. He knew that where the monarchs of the forest grew, there could be no barren soil, and he made his home in the densest woods. Singularly enough, too, he sought this on the hills, believing, as he did, that the river bottoms were infested with agues and fevers. Here necessity compelled him to be for years, half hunter and half farmer.

The manner in which West Virginia was settled and the consequent habits of her people were, in part, unfavorable to the existence of extensive or skilled farming and have directed the industry of the inhabitants into almost every other channel. The original settlers were to a large extent men without means, who, on entering this wilderness region, cut off from all exit to market, were content to clear small patches of ground, whose generous response to even poor cultivation yielded returns sufficient to supply their limited wants. His little clearing, selected in the most convenient spot was cultivated by the pioneer, year after year, in corn and vegetables which served to support his family, and feed a hog or two, and possibly a horse and a cow. With fowls and the abundance of game in the forests around, there was ever a sufficiency of meat and bread. Contentment was full.

The settler was remote from stores and destitute of means, even if he had been near to the marts of trade. He drew from the soil a supply for every urgent want. Standing in the dense forest, he had constructed a shelter from the trees around him. The years went by and changes took place; the brush fence was replaced by one made of boards or rails, or, mayhap, he regretted the expenditure upon fences and did without them. His neighbor's stock will not bother him for they are too far away. Still the proprietor must be on guard; flocks of crows and other wild birds pick the germinating grain from the ground; the raccoon feasted on his roasting

ears; the squirrels gnawed the hardening grain; and when it was in shock, the bears and wild turkeys got their share. Later, stumps rotted or were burned out; stones were dug out and piled into heaps, or made of use; drainage was effected and fields improved. The rude tools, clumsy of make, gradually gave place to utensils, models of lighter make, and efficiency, and a dependence for power upon horses instead of men.

Under these conditions, with limited transportation facilities, West Virginia gave but little attention to the raising of agricultural products for exportation. They were content—had to be so—with the production of a sufficiency for home consumption.

The lack of facilities for the transportation of farm products led our people residing along all the streams that can float a raft or even single logs, to denude the forests of the magnificent timber which they supplied, often sacrificing it in the most prodigal manner. Then, too, they turned their attention to tan-bark and hoop-poles which went to market on rafts or in little crude flat boats. These occupations led to a neglect of agriculture and stock raising for both of which the State is peculiarly fitted. However, there were exceptions to this in the region along the Ohio, the South Branch of the Potomac and the Greenbrier country.

We get a glimpse of the prices of some of the agricultural products in West Virginia away back in these early years, from old records still extant. In 1822 the price of wheat per bushel, in Morgantown, was fifty cents; of corn, thirty-three cents; of oats, sixteen cents; of rye, forty cents; of buckwheat, twenty-five cents; of eggs, six cents per dozen; of butter, ten cents per pound; and of bacon, two and a half cents per pound.

Many years passed before there was any encouragement or concentrated action for the improvement of agriculture in the State. March 20, 1841, the Virginia Assembly passed "An act to establish a State Board of Agriculture," but this was repealed the next year. Soon thereafter the people in some of the most progressive counties now embraced in West Virginia, associated themselves together for the advancement of their agricultural interests. "The Marshall County Agricultural Association" was incorporated March 14, 1850. In 1856 "The Monongalia Agricultural and Mechanical Society" was organized; and the same year "The Jefferson County Agricultural Society" was chartered, and "The Cabell County Agricultural Society" became a body politic. Others followed in the next few years.

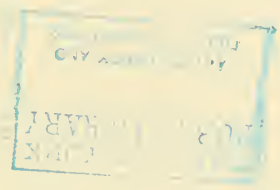
February 24, 1858 "The Northwestern Virginia Agricultural Society" was incorporated with its principal place of business in Ohio county. It

purchased and equipped what was known as the "Fair Grounds" on Wheeling Island. Its successor was "The North West Virginia Agricultural Society," made a corporation by the Legislature of the new State of West Virginia February 27, 1866. From this came the "West Virginia Exposition and State Fair," which was organized February 1, 1881, and which owns the Fair Grounds on Wheeling Island where it has held annual expositions for twenty-two years and thereby has done a great work in creating and developing an interest, not only in our agriculture, but in live stock and other industrial enterprises.

THE USE OF AGRICULTURAL IMPLEMENTS AND MACHINERY IN THE STATE.

There is no better method of determining the advance steps taken in the improvement of our agricultural interests than that of the introduction and use of farm machinery and implements. A brief review will aid us in this. The implements of the olden time were few and rude. The plow of the pioneer was sometimes made entirely of wood, at best never possessed more than a coulter and shear of iron. For a harrow, a thorn bush was often brought into service and this process was called "brushing in the crop." Sometimes the harrow was a wooden frame with teeth of the same material. Wagons there were none; in their stead, sleds of various shapes and sizes were used. Pitch-forks were made of wood—often a small forked pole. Shovels were also made of wood, or, if of iron, they were fashioned by the cross-roads blacksmith. The saddle was a pack-saddle, made from the crotches of two forked limbs fastened together by two boards, which were padded with sheep skin; about four inches of the limbs were left above the crotches for horn and crupper. Grain was at first pounded on a hominy block; this was made by taking a block three feet long sawed from the trunk of a tree two and a half feet in diameter, set on end, and the top burned out so as to form a large bowl. In this the grain was placed and pounded into meal with a large pestle of wood or stone usually attached to a spring-pole, or "sweep" as it was called.

This was succeeded by the hand-mill—a great improvement. It consisted of two round stones—in shape like a grindstone—one above the other, and encased in a hoop to which was attached a spout for the discharge of the meal. To the upper stone was fastened an upright piece of wood to the end of which was attached a beam and two persons could thus work at the same time in turning the mill. Its capacity was about one bushel of meal per day. The meal thus made was course, but was eaten in the form of Johnny-cake, pone or mush.



A SHEEP FARM IN THE NORTHERN PAN-HANDLE OF WEST VIRGINIA— (See p. 317.)

Then, in a later day, came the tub-mill, propelled by water—the first use made of the water-power of the State—and many of them were constructed along the rapid streams around the sources of the South Branch, the Cheat, Monongahela, Elk, Gauley, New and Tug rivers. On these the first wheat raised in the western part of the State was ground. Sieves were used instead of bolting cloths, and these were made of raw-dressed deer skins, stretched over a hoop and perforated with a hot wire.

The grain—wheat—was cut with a sickle, the reaper gathering a "grip" as it was called, with his left hand, and cutting it with his right. Four "grips" generally made a sheaf, of which a good reaper would cut from thirty-five to forty-five dozen in a day. The sheaves when dry were placed on the floor, or dry hard earth, and the grain beaten out with a flail, an implement made from a small hickory pole ten or twelve feet long and beaten with the pole of and axe at a point about three feet from the larger end, until quite flexible. An expert hand would "flail" out from twelve to fifteen bushels in a day. The cleaning of the grain, that is separating it from the chaff, was done by using a sheet or quilt as a fan. The wind-mill came into use about 1825 or 30. Then the grain was tramped out on wooden floors by horses or oxen, as it had been in Palestine two thousand years before. About 1840, the first rude threshing machine made its appearance in West Virginia. It was known the region over as a "chaff-piler" because grain and chaff were piled together in a heap on the ground. They were driven by four horses and had a capacity of about a hundred bushels per day. The wind-mill was then used to separate the chaff from the grain and the then famous "Rockaway Wind-Mills" were to be found in the barns of the better class of farmers.

In 1850, Down's "Separator," a threshing machine which separated the grain from the chaff, made its appearance, and soon had a rival in that of Ralston's "Patent Threshing and Cleaning Machine." R. H. Hubbard, of Wheeling, was the first agricultural implement dealer in the western part of the State; in 1854 he was selling Delanoe's Patent Independent Horse Rakes, Ketcham's Mowers, and later Wardrop & Co.'s Reapers. These were not introduced until about 1865, and the steam thresher did not come into use until about 1880. In the last twenty years there has been a most rapid introduction of all kinds of farm utensils and implements into the State, and by the census of 1900 the value of these was found to aggregate $5,040,420.00.

PRESENT CONDITIONS OF AGRICULTURE IN THE STATE.

THE FERTILITY OF OUR LANDS.

It has been stated elsewhere that there are no swamp lands in West Virginia. Neither are there any "barrens;" no large scopes or areas of virgin soil in the State not liable to be rendered perfectly friable and productive under proper mechanical treatment, without the use of fertilizers. The average fertility of the soil is equal to that of any other State in the Union.

The total absence of waste and sterile areas and, instead thereof, the all prevading freshness and vigor of vegetation impress alike the tourist and the practical economist. Among the mineral strata edging out of the hills everywhere, there are absolutely none in which analysis does not recognize superior elements of fertility. The prevailing ingredients of our soils are silica, alumina, or pure clay, marl, lime, magnesia and iron, which the very uneveness of the surface tends to amalgamate to the greatest practical advantage. Thus the alluvial, or bottom lands, composed of the diluvium from the neighboring hills, combine mechanically and chemically, every kind of mineral and vegetable decomposition in the country. This soil, varying in depth from two to twenty or thirty feet, produces the largest timber and the most luxuriant crops; and resting upon a substantial basis of dark loam—the accumulation of thousands of years of the rankest forest vegetation—and fertile clays, it excels in reliability and endurance, the black and rich, but thirsty and chaffy soils of the western prairies.

It is a matter of frequent remark and general surprise that crops growing in our "hill" country, especially on the plateau lands, are not affected by the dryness of the soil which elsewhere increases with the elevation. The reason for this is very apparent. The strata of rock, coal and earth of which our hills are composed, being all deposited horizontally, or nearly so, the rain drops filtering through the earth and fissures in the rocks and seeking its level, gradually finds its way to the surface again between the looser seams, and slowly but constantly dripping, so long as the supply lasts within, spreads and distributes fertilizing humidity over the whole surface of the slope. Whenever the descending water is obstructed in its progres by a strata of impervious clay, or unfissured sand rock, numerous and copious springs on the sloping surface are the result. This is the reason why the Cumberland Plateau is eminently a "Springs Region," and thus it is that our hill slopes have an advantage over low lands here and elsewhere in periods of drouth.

It is also owing to this horizontal stratification that almost every section of the State outside the Allegheny Highland proper, exhibits, though in different relative proportion, the soil and mineral strata of every other section. In some counties limestone may predominate, and sand-stone in others; yet without any material difference in their respective agricultural productions, while nearly throughout the whole State, may be noticed at different levels, those rich, dark, crumbling shales so welcome to the eye of the practical judge of a productive soil.

THE STATE BOARD OF AGRICULTURE—THE FARM REVIEW.

West Virginia marches along to the anthem of progress. On the 13th of March, 1891, the Legislature passed an act creating a State Board of Agriculture, consisting of one member from each congressional district to be appointed by the Governor for a term of four years. An organization was effected at Charleston on the first Monday in May, 1891, when Professor T. C. Atkeson, of Putnam county, was elected President, and Harry M. Turner, of Jefferson county, Secretary. The second meeting was held at Morgantown in the ensuing October and then began that earnest work which has resulted in the past twelve years in accomplishing so much good for the State by advancing its agricultural interests. This it has done by arousing an interest in and thus promoting our agricultural industries along every line. The State makes annual appropriations to aid it in the prosecution of its work, and for the years 1903 and 1904 these amounted to $17,000.00 each, or a total of $34,000.00, for the two years.

At the second meeting of the Board—October 1891—it was decided to begin the publication of a four-page, four-column monthly paper to be called the *Farm Bulletin,* and to be edited by the Secretary of the Board. Accordingly, the first number was issued at Shepherdstown, April 1, 1892, and was circulated free to West Virginia farmers. It appeared regularly each month until October following when it was omitted. The number for November was issued but it did not appear again until April, 1893, making in all seven numbers which constitute Vol. I., of the Board's publications.

At the meeting of the State Board on the first Monday in April, 1893, it was decided to change the form of the paper to that of a magazine, and publish it quarterly. The name was changed to the *West Virginia Farm Reporter,* and this was issued as a quarterly, in July and October of 1893, and for the four quarters of 1894, the six numbers being designated as Volume II. The Reporter was published monthly through 1895, 1896 and 1897 as volumes III, IV, and V.

On January 1, 1898, the name was changed to the *West Virginia Farm Review* and it has since appeared as a monthly publication. From the first the *Bulletin—Reporter—Review*, has been ably edited and has become very popular among West Virginia farmers. As the official organ of the State Board of Agriculture it has been productive of much good.

WEST VIRGINIA FARMS CLASSIFIED BY AREA.

By the United States census of 1900, it is shown that there were 92,874 farms in West Virginia. Of these 599 contained less than three acres; 5,342 contained more than three acres and less than ten; 7,140 contained more than ten acres and less than twenty; 19,306 contained more than twenty acres and less than fifty; 25,529 contained more than fifty acres and less than one hundred; 20,164 contained more than one hundred acres and less than one hundred and seventy-five; 7,542 contained more than one hundred and seventy-five acres and less than two hundred and sixty; 5,127 contained more than two hundred and sixty acres and less than five hundred; 1,511 contained more than five hundred acres and less than one thousand; and 614 contained more than one thousand acres. The total acreage classed as farm land was 10,654,513, of which 5,498,981 acres, or fifty-one and six-tenths per cent. was improved land; this being thirty-one per cent. of the total land area of the State.

THE AGRICULTURAL PRODUCTIONS OF WEST VIRGINIA.

THE VARIETY AND QUALITY.

Statistics cannot present correctly the conditions of agriculture in a State two-thirds of whose area is crowned with forests. No present exhibits of her productions from the soil can give a fair idea of her productive capabilities. Census reports and statistics may and do afford data upon which to determine the resources of old and well populated regions, where all branches of industry have adjusted themselves into harmonious working order, and each pursuit is maintained by a special body of laborers trained for their special calling. But this is far from being the case in West Virginia. Until recently, many of the conditions requisite for the full development of her abundant resources have been wanting. Now these are present and there will be an unprecedented advance. The following is intended to show the wide range of our agricultural productions; and in the consideration of the accompanying statistics, chiefly from the United States census, it should be borne in mind that 10,494,133 acres in the State consist of virgin soil not yet brought under cultivation, and that to acquire a

HARPER'S FERRY, AS SEEN FROM BOLIVAR HEIGHTS—Jefferson County—Baltimore & Ohio Railroad—(See p. 323.)

knowledge of her productive capabilities, all the items relating to quantity should be multiplied by three.

INDIAN CORN.

Indian corn, the chief crop of West Virginia, and one grown on its soil before the coming of white men, was the gift of the New World to the Old. Although there has been much written on the eastern origin of the grain, it did not grow in that part of Asia watered by the Indus at the time of the expedition of Alexander the Great, as shown by the fact that it is not among the productions of that country mentioned by Nearchus, the commander of the fleet. Neither is it noticed by Arian, Diodorus, Columella, nor any other ancient author. And even as late as 1491, the year before Columbus discovered America, Joan de Cuba, in his *Ortus Sanitatus* makes no mention of it. It has never been found in any ancient tumulus, sarcophagus, or pyramid; nor has it ever been represented in any ancient painting, sculpture, or work of art, except in America. But in this country, according to Garcilasco de la Vega, one of the earliest Peruvian historians, the palace gardens of the Incas were ornamented with Maize (corn) in gold and silver, with all the grains, spikes, stalks, and leaves; and in one instance, in the "Garden of Gold and Silver," there was an entire corn-field of considerable size, representing the corn in its exact and natural shape, a proof no less of the wealth of the Incas than of their veneration for this important grain.

In further proof of the American origin of this grain, it may be stated that it is still found growing in a wild state from the Rocky mountains of North America to the humid forests of Paraguay, where, instead of having each grain naked as is always the case after long cultivation, it is completely covered with glumes, or husks. It is, moreover, a well authenticated fact that Maize was found in a state of cultivation among the aborigines, on the island of Cuba at the time of the discovery of that island by Columbus, as well as in most other places in America, West Virginia among them, when first explored by Europeans. The first successful attempt of the English, in North America to cultivate this grain was made at Jamestown, on James river, in Virginia in 1608. The colonists sent over by the Virginia Company of London, adopted the mode then practiced by the Indians, which, with modifications, has been pursued ever since.

Numerous conditions have combined to make Indian Corn the most important crop of West Virginia. The first of these is that the soil and climate are more generally adopted to its production than to that of any other grain. The most common soil is a loam with more or less sand and

calcareous matter. As a rule the alluvial bottoms along the streams have more sand than the hills. The soil is usually light, quick, and easily penetrated by the heat of the sun and whether in bottom or on uplands has an abundance of vegetable matter. In such lands, corn produces abundantly, with the very poorest cultivation. There are many regions of the State that furnish astonishing yields under continuous cultivation through long periods of time. Blennerhassett's Island, in the Ohio river, in Wood county, has been under cultivation, in some of its parts for a hundred years; much of the bottom land along the Ohio and Great Kanawha rivers have been producing corn for a hundred and ten years; while the "Indian Old Fields" of the Valley of the South Branch of the Potomac have been cultivated by white men for a hundred and sixty years and long before that by the Indians. In all these sections, without commercial fertilizers, the yield has been from eighty to one hundred bushels per acre. These examples may serve to illustrate not only the amazing productiveness of the West Virginia loams and calcareous soils, but it may be stated further that it is not only on the bottoms, but on the hills as well, that under proper cultivation, a yield of eighty bushels per acre is frequently produced.

With increased production comes an increased demand brought about by the rapid development of the live stock industry, and this will continue to grow in the future, so that all the corn grown here will be consumed in the home market—that is within the State. From what has been said about our soils and climate it may be inferred that corn is a sure crop. Such it is; for not since white men came to the region has there been a total failure of this grain.

Corn is grown in every county in the State, but the chief producing counties are Wayne, Kanawha, Jackson, Mason, Lincoln, and Boone. As shown by the census of 1900 of the 92,874 farms in the State, 82,490 reported 724,646 acres in corn with a production of 16,610,730 bushels valued at $7,696,335.00.

WHEAT.

Wheat, our most important cereal after corn, has been cultivated heretofore, largely—almost exclusively, it may be said—in the older counties where the condition of the lands was more favorable for its successful cultivation. In these were large bodies of open lands which had been cleared long and kept under thorough cultivation. There preparation could be made for early seeding, and harvesting and threshing be more economically managed. But now the cultivation of this grain is being introduced rapidly

into the newer counties, where there is a largely increased acreage of cleared land, and a much greater attention being now paid to varied and improved farming. So that now wheat is grown in every county of the State.

The conditions of climate and soil will ever operate to keep the production of wheat below that of corn. These are not found here so generally as those suited to corn. Well drained clay or clay loam with calcareous matter suits it best. An equable winter climate, dry weather about ripening time and a freedom from heavy rains when the bloom is on, all are required for the heaviest yield.

Before the days of low freight rates from the great Northwest, wheat production in West Virginia was very profitable and the flouring mills declared large dividends. But now great trunk lines of railroad have made it difficult for West Virginia farmers to successfully compete in the markets with the wheat producers of the Northwest. Notwithstanding this, many thousands of our farmers still produce it as their surest source of a bread supply and at the same time find an excellent home market for their surplus. Jefferson, Berkeley, Mason, Wood, Jackson, and Marshall are the leading wheat producing counties. By the census of 1900 it is shown that 46,778 farms reported an acreage of 447,928 sown to wheat, with a production of 4,326,150 bushels, valued at $3,040,314.00. The average price per bushel was seventy cents, which was an excess of that in thirty-three States and territories of the Union, the average price per bushel for the whole United States being but fifty-six cents per bushel. The average yield per acre in West Virginia was nine and seven-tenths bushels, and the average value of wheat per farm, $64.99.

OATS.

Oats rank third in the grain production of West Virginia. The productiveness, adaptiveness to various soils and climates, and the comparatively small labor with which this grain may be raised, render the crop a favorite one, more especially in the new counties. The demand is limited to the supply, the latter never being equal to the former. In the mountain and plateau lands the conditions of soil and climate cause oats to supercede in large measure the other grains.

The counties standing first in the production of oats, in the order named, are Preston, Ohio, Hancock, Brooke, Monongalia and Marion. By the census of 1900 it was shown that 20,839 farms were producing oats to which 99,433 acres were sown with a production of 1,833,840 bushels, the value of which was $637,176. In some of the counties reporting the average per acre was from twenty-five to thirty-two bushels.

RYE.

Rye is well adapted to the higher and colder parts of the State and it is here that it is principally raised. The counties of Hampshire, Hardy, Morgan, Berkeley and Grant are the chief producers but it is grown in every county of the State. The farms reporting as shown by the census of 1900, numbered 2,935, having 13,758 acres in rye, which produced 110,310 bushels valued at $58,784.

BARLEY.

The cultivation of barley in the State has received but little attention. It is not used for food by man or beast, like corn, wheat, or oats; hence there is no home consumption, but a small market demand, and, therefore, but little inducement to cultivate it. But it will grow in every county of the State, especially in the northern portion. In the year 1900, Barley was cultivated on 81 farms, principally in the counties of Jefferson, Hardy, Pendleton, and Preston. 253 acres were sown and yielded 3,660 bushels valued at $1,832.

BROOM CORN.

Broom Corn will grow on any soil and at any altitude at which Indian corn is produced, and it can, therefore, be grown successfully in every county of the State, but as yet very little interest has been manifested in this crop. In the year 1900, there were 397 farms reporting 82 acres in Broom Corn, producing 32,570 pounds, valued at $2,029.00 or an average of $24.74 per acre.

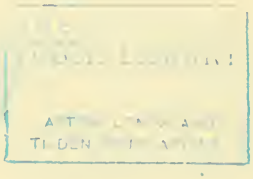
BUCKWHEAT.

West Virginia is a Buckwheat State. This grain thrives in every portion of it, the principal producing counties being Preston, Barbour, Hampshire, and Raleigh, in the order named. It appears to be particularly fitted for the glades and table-lands of the more elevated regions. Over them it is largely raised and forms an important article of food. The yield is very favorable in different soils but the largest is in good dry loam. In rich alluvial soil it is inclined to go to straw. In the mountains it is sown earlier than elsewhere in order to escape the fall frosts which are fatal to it. In the lower counties, the middle of July is early enough for it. To the new settler its rapid growth is very useful, enabling him to get a crop from late cleared lands.

West Virginia produces more Buckwheat than any other of the South

COMING DOWN NEW RIVER—Between Hawk's Nest and Kanawha Falls, Chesapeake & Ohio Railway—(See p. 323.)

MAIN HOTEL—White Sulphur Springs, Greenbrier County—(See p. 255.)



Atlantic States, and surpasses thirty-one states and territories in the average production per acre. In the year 1900, 21,410 acres on 6,997 farms were sown to Buckwheat, with a yield of 267,257 bushels valued at $187,880.

THE GRASSES.

West Virginia is rich in native grasses. The strata of the coal measures above the conglomerates produce the best class of soils, since they consist of shales, argillaceous sandstone, and layers of limestone or calcareous strata, intimately mixed. All are naturally productive and especially suited to the growth of the various grasses.

In the early settlements of West Virginia, the cattle of the pioneers were chiefly dependent for forage upon the wild indigenous grasses such as Red-top, Blue Grass, Indian Grass (resembling Blue Grass), Wire Grass, Crab Grass, and the coarses herbage of the salt licks, beaver meadows, and the glade lands. All these have now been brought under cultivation and are known as native, or tame grasses. Among the principal foreign grasses grown here are Timothy, Orchard Grass, and Ray Grass. Both the wild and tame grasses are speedily becoming the most important of all stock foods in West Virginia. The tame grasses are successfully grown and make large yields of very nutritious hay. Timothy and Orchard Grass makes crops averaging one and a half to two and a half tons per acre.

If it is true that the farmer's only capital is his land, how important it is for him not only to preserve that capital but to increase it year after year. There is no surer or better way to do this than by cultivating the grasses. The principal of these which demand his attention are now to be mentioned briefly.

Timothy:—This is known in New England as "Herd's-Grass," and is pre-eminent in West Virginia. It is principally the grass of our meadows, is only useful for hay, and West Virginia meadows produce it to perfection. Timothy meadows generally occupy our smoothest and best lands—in most cases the bottoms, although heavy crops are also cut on the rich hillsides, not too steep for the mower or scythe. In the mountains, hay is cropped from every variety of surface and blue grass, being of spontaneous growth, especially on limestone lands, Timothy is less frequently met with. It grows luxuriantly in every part of the State but is less capable of standing the extremes of heat and cold than some other varieties.

Orchard Grass:—This is so called because it flourishes in orchards and thin woodlands. It is sometimes called "Cock's-Foot Grass." It has been largely introduced into West Virginia and with excellent results. It adapts

itself to all varieties of temperature and soil, and flourishes on low and high lands alike, though it thrives most luxuriantly in a rich loose loam. It is an excellent grower, making a rich sod and in resisting close grazing is second only to blue grass. If cut early, it cures nicely and makes a valuable hay. Under favorable circumstances it produces two crops annually.

Red Top (Herd's Grass) :—This is one of the best pasture grasses and when standing alone may be cut for hay. Then its aftermath makes excellent late summer and fall pastures. But when it finds its way into timothy meadows, it there becomes almost worthless, for it is dead ripe and perfectly dry before the timothy is ready to harvest. It grows luxuriantly throughout every portion of the State.

Crab Grass:—This is an indigenous annual. It is never sown, but wherever cultivation ceases, it takes possession of the fields. It forms an excellent pasturage through the summer and until late in the fall. It makes a rapid growth in oats stubble, where, if cut when in flower, it gives a good yield of hay—sometimes more forage than the oats crop which preceded it. This grass sends out numerous stems branching at the base, but forms no sod.

Ray Grass:—This grass growing widely over West Virginia, affords tolerably good pasture and makes a handsome sward for a yard or lawn, but as a meadow grass for hay it is regarded as inferior to any of the preceding.

Blue Grass:—The celebrated Blue Grass of Kentucky is not more celebrated there than in West Virginia where many thousands of the best American export cattle that now go over sea, graze upon it. It is the best of all our pasture grasses—indeed, the best in the world. It grows spontaneously and luxuriantly over a large portion of the State. It is all that can be required for our soil and temperature and is unrivalled as a pasturage, at all seasons, for every kind of stock, and especially for beef making and dairy purposes. The finest butter made in the State comes from the Blue Grass pastures. To such an extent does it grow that it overruns meadows and hence foreign grasses cannot be maintained for any length of time. The farmer on the calcareous soils of the State knows that grass grows on his hilltops almost or quite as well as on the bottom lands, but on neither can they keep timothy longer than five years as the predominant. After that period, Blue Grass takes the ground, and this, long indigenous, maintains possession indefinitely, forming excellent pastures. It is well known, too, that the land improves so long as either grass grows upon it. The Blue Grass pasture may be broken up with the plow to be followed by the same routine.

Millet and Hungarian Grass:—Millet grows luxuriantly on West Vir-

ginia lands. It is used for soiling purposes, for hay, and for its seed more than fifty bushels of which have been raised on a single acre. The hay made from it is of good quality and large quantity. Hungarian Grass is sown as a forage plant and is valuable for its quick, luxuriant growth even on poor soils. It is much relished by horses and cattle and is very nutritious. It gives a good yield of excellent hay.

The Clovers:—The White Clover is indigenous and covered West Virginia when white men first came to it. Indeed, no other forage plant, with the single exception of blue grass, has been of greater value to the State than this. In the spring, it affords excellent pasture for hogs, sheep, and cattle; it is also good for horses until after the blossom disappears. The Red Clover is not only a pasture plant but among the most valuable of our forage crops, yielding abundantly and producing two crops annually. The Crimson or Scarlet Clover, an annual, grows to the height of two or three feet. It makes an excellent pasture in the fall months and as a green fertilizer ranks very high. The clovers of the State have not, as yet, been affected by any disease. Alfalfa has been cultivated to some extent, though it has not received the attention its merits demand. Among all the forage plants it stands unrivaled for abundant yield, longevity, and hardiness.

Statistics:—In the year 1900, 64,767 farms in West Virginia reported production of hay and forage grasses on 601,935 acres, aggregating 644,535 tons, worth $5,517,013.00. Of this 755 tons were of wild grasses; 5,428 tons of millet and Hungarian grasses; 198 tons of alfalfa; 23,929 tons of clover; 494,467 tons of tame and cultivated grasses, under the latter head being included timothy, red-top, orchard grass, blue grass, crab grass and other varieties.

Observations:—What is better evidence of a well managed farm than extensive fields of waving hay ready for the mower, or the green carpeted pasture land on which are grazing herds of sleek cattle suggestive of rich cream, milk and butter, or juicy steaks, and where the horses that share the bounteous feast will compare favorably with the best blood of Kentucky or any other State of the Union! The well mowed lawn, too, that skirts the gravel walk, that spreads out in front of the farmer's neat cottage or stately mansion, and through his grain and forage crops which not only fill his barns with plenty, but also add to his bank account after all the needs of himself and family have been fully and freely met. American life furnishes nothing better than this. Such a home is within the reach of every industrious and frugal farmer in West Virginia.

COW PEAS.

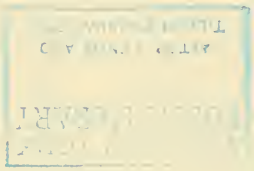
Cow Peas as a green fertilizer and a forage crop have come into universal favor among the farmers of the State. This is a leguminous plant which appropriates nitrogen from the atmosphere as do all plants of this family. The vine and the peas supply as much humus to the ground as clover and can be grown on soils in which clover would wither and die. A bushel and a half to the acre is sown, usually broadcast, although some farmers drill them. The hay is cut when the pods begin to turn yellow and while the leaves are yet green, and the stems tender. There is no better soil renovater than the Cow Pea. Worn out soil can be brought speedily to a condition of profitable production by sowing a succession of Cow Peas upon it. Valuable as the Cow Pea is for forage, its chief excellence is this property of restoring exhausted soils, surpassing, perhaps, all other leguminous plants in producing, as it does, maximum results in a minimum of time.

IRISH POTATOES.

The Irish Potato grows to great perfection in West Virginia, where for size, mealiness and delicacy of flavor it is unsurpassed. Our deep light moulds, the accumulation of the vegetable matters of a thousand years of dense forestry, and our cool moist summers, furnish just the condition needed to bring this vegetable to its highest maturity. In the high tablelands and glades, or upland prairies as they may be called, the potato excels in every point of excellence. It must be remembered that its original home is the high, cool, well-watered slopes of Peru—a region, in these respects, not unlike some parts of West Virginia. This crop is grown largely for home consumption, or rather, for home market, though large quantities are shipped annually to Pittsburg and New Orleans. From one to three hundred bushels per acre is the yield and this is sometimes excelled on the river bottoms. The price ranges from sixty cents to one dollar per bushel and there is ever a strong demand in the home market. The leading producing counties are Marshall, Wetzel, Wood, Kanawha and Jackson. In 1900, potatoes were grown on 69,917 farms, on 30,123 acres, the product being 2,215,821 bushels, the value of which was $1,133,381.00.

SWEET POTATOES.

Much of the sandy soil both in the valleys and on the highlands of West Virginia is well adapted to the culture of the Sweet Potato, and when the season is propitious, the yield is very abundant. It is one of the favorite



ROSBBY'S ROCK—Seven Miles East of Moundsville, Marshall County—Baltimore & Ohio Railroad—(See p. 323.)

crops for home consumption and to such an extent is this true that it is grown in every county of the State. The chief producing counties are Wayne, Boone, Logan, Wyoming, Lincoln and Mingo, where it attains a high degree of excellence. Poor sandy loams are best for it, and when these soils are void of vegetable matter, half rotted straw may be used to advantage. The average yield is from ninety to one hundred bushels per acre. In 1900 3,393 acres of Sweet Potatoes on 18,512 farms were grown in the State, with a yield of 202,424 bushels worth $175,000.00, the average price per bushel being less in forty States than in West Virginia.

TURNIPS.

The Turnip with its numerous varieties, is well suited to our soil and climate. It is of much value to the new comer since it can be raised with much ease on imperfectly cleared land. It does finely in a virgin soil full of vegetable matter and ashes, and requires but a mere scratching of the soil. It furnishes food for both man and beast, being especially fitted for milch cows. The white, sweet turnip has been almost exclusively cultivated, but now the Rutabaga is coming into favor.

TOBACCO.

Ever since John Rolfe introduced the culture of tobacco on the banks of the Rames river, in 1612, it has been grown on the soil of Virginia. This was extended to what is now West Virginia as rapidly as civilization pushed its way westward and settlements were made in the wilderness toward the Ohio. No better quality nor higher priced tobacco than that grown in West Virginia can be produced in any other State. In 1900 5,129 acres of tobacco were grown on 5,045 farms in the State, the yield being 3,087,140 pounds, worth $228,620.00.

SORGHUM, OR CHINESE CANE.

This was introduced into West Virginia in 1857 and its cultivation spread rapidly to almost every county in the State. It succeeds well, and in good soil when fully matured, yields from two hundred to three hundred gallons of molasses per acre. The chief producing counties are Nicholas, Braxton, Roane, Jackson, Wayne and Putnam, while its cultivation is officially reported in fifty of the fifty-five counties of the State. By the last census it appears that 6,870 acres of sorghum cane were grown on 14,834 farms, with a production of 56,469 tons, of which 53,077 were crushed for syrup, from which 450,777 gallons of molasses were made, valued at $180,140.00.

MAPLE SUGAR.

Maple sugar still continues to be one of the forest products of West Virginia. The sugar maple, from the sap of which it is made, grows all over the State. The leading counties of the State in the production of this, "the sweetest of all sweets," are Pocahontas, Grant, Pendleton, Monongalia, and Barbour. The total number of farms reporting in the last census year was 1,507 which produced 141,550 pounds of sugar, valued at $2,273.00; and 14,874 gallons of syrup worth $12,998.00.

HONEY.

Although bee culture here requires but little care and labor, it has not heretofore formed one of the industrial pursuits in any part of the State. On many farms, however, bees are now kept, these being of the improved variety and the latest devised hives for them have come into use. Still, the supply throughout the State is limited and honey commands a good price. In the last census year 25,240 farms reported 111,417 swarms of bees, valued at $375,622.00; which produced 1,673,120 pounds of honey and 30,180 pounds of wax, the two products being valued at $199,089.00.

GARDENING IN WEST VIRGINIA.

There are two kinds of market gardening—the first of these is the busines of growing vegetables for shipment to distant markets, *out of season;* the second is that of growing them for the local market *in season.*

The first of these is of recent origin and development, in fact, within the last twenty years, in West Virginia. The few vegetables thus produced and sold out of season are grown under 283,300 square feet of glass, chiefly in the counties of Ohio, Wood, Kanawha, Jefferson, and Mason.

The second of these divisions is of ancient origin and growth, but it, too, has recently made very rapid increase in the State. Local growers have redoubled their efforts in the production of those crops, in the cultivation of which the advantage remained with them. Improved implements and machinery have enabled them to cheapen the products of their gardens without decreasing their margin of profit. Then, too, West Virginia gardens are cultivated with increasing intelligence each year. Products are marketed in a more attractive form. With growing centers of population, the demands of the home market have been greatly enlarged, and the result is, on the whole, that gardening about the larger towns in the mining and other industrial regions, for local sale, has been greatly increased. But statistics pertaining to this industry are difficult to obtain. Most of the products

of these gardens are sold at their gates or direct from the wagon to the consumer or the retail merchant and no records are kept. Therefore, comparisons and conditions must be based only on the opinion of men familiar with them in the different parts of the State. The census reports, however, have the general value of "Market Garden Products" including "Small Fruits Sold," and from this it appears that for the year 1899 the sales of these amount to $873,620.00; this being an increase of $703,847.00, or 413 per cent. in the last ten years. This is made in an effort to produce vegetables and small fruits in the valleys and on the hills, to supply not only the toilers in the factories but the more than forty thousand miners who toil beneath the hills for those dependent upon them. No other American State has a better home market for its vegetables—garden products—than West Virginia. As has been shown under the head of Topography, the soils of our river bottoms, composed of the disintegration of the rocks, are extremely fertile and especially adapted to the cultivation of garden products. The West Virginia gardener, with his home market in the coal fields and manufacturing centers all around him, is not confronted with the problem of transportation and storage, as are those who must ship long distances. Thus he is not subjected to losses in a glutted market where railroad traffic and commission rates absorb his profits and he receives small returns for his industry. Neither is he subjected to losses because of the perishable nature of his crops, for he has his regular customers who are largely the consumers as well, and they need stated supplies at regular intervals. Neither does he have the expense of insurance. It is estimated that he who produces and ships to far away markets, after paying freights, drayage, insurance and commissions, scarcely receives forty per cent of the price which the consumer pays for his vegetables. Not so with the West Virginia gardener who sells in the local markets around him, directly to the consumer or retailer, and thus receives from seventy-five to one hundred per cent of the price of his products. Not in thirty years to come will our gardening industry be able to supply existing and ever increasing demands for their products in their home markets in the coal fields and other centers of industry within the State. And when a surplus is created the great market centers of Pittsburg and other cities lie within a few hours of their doors.

Statistics of Garden Products:—It is interesting to learn of our beginings in this department of productive industry. By the last census it was shown that 674 acres cultivated in onions produced 136,423 bushels worth $107,547.00; eight acres of beets produced 1,620 bushels; two acres of carrots yielded 246 bushels; one acre of parsnips yielded 226 bushels; ten

acres of radishes yielded 35,660 bunches; 45 acres in turnips yielded 7,340 bushels; 58 acres produced 6,307 bushels of green beans; 17 acres produced 1,563 bushels of green peas; 1,416 acres produced 97,218 bushels of sweet corn; 1,812 acres produced 379,076 bushels of tomatoes; 215 acres produced 42,449 bushels of cucumbers; one acre produced 2,640 egg plants; 38 acres produced 83,700 pumpkins; four acres produced 10,510 squashes; 888 acres produced 678,710 watermelons; 190 acres produced 344,890 muskmelons; one acre produced 1,000 pounds of rhubarb; 210 acres produced 5,776,380 heads of cauliflower; four acres produced 1,402 bushels of lettuce; five acres produced 5,070 bunches of asparagus, each containing twelve plants; and 31 acres produced 50,870 bunches of celery. Kitchen gardens, that is, gardens whose products are for home consumption, aggregating 28,816 acres were reported on 73,467 farms, the product being valued at $1,489,481.00. In these gardens 15,221 acres planted in beans produced 52,815 bushels worth $80,496.00; and 223 acres in peas produced 3,613 bushels, worth $3,731.00.

VEGETABLES AND HERBS WHICH GROW TO PERFECTION IN WEST VIRGINIA.

The following in alphabetical order are the garden vegetables and herbs which attain to perfection in the open air in the gardens of every section of the State: Artichoke, asparagus, beans, beets, borecole, brocoli, brussels sprouts, cabbage, carrots, cauliflower, celery, cress, cucumber, egg plant, endive, gourd, horseradish, lettuce, tomato, mangel wurzel, watermelon, muskmelon, canteloupe, mustard, okra, oyster plant, onion, parsley, parsnip, peas, pepper (red), potato, sweet potato, pumpkin, rhubarb, spinach, squash and turnip. Among the culinary and medicinal household herbs are the following: Anise seed, caraway, camomile, chervil, chive, coriander, dandelion, dill, estragon, garlic, hyssop, lavender, leek, marjoram, mint, rosemary, rue, sage, tansy, thyme, and numbers of others of minor utility.

AGRICULTURAL EXPERIMENT STATION.

By the act of Congress approved March 2, 1887, it was provided that an agricultural experiment station should be provided in each State, and this station was established in West Virginia in 1889, under the direction of the board of regents of the West Virginia University. The sum of $15,000 per annum was appropriated for the purpose of paying the necessary expenses of investigation in agricultural subjects, and the amount has been supplemented each year by the fees received from the analysis of fertilizers and the sale of tags to fertilizer manufacturers. The cost of the necessary

printing, binding and stationery is provided for by an appropriation made at each session of the Legislature.

While original investigation rather than class-room work is the chief business of the station staff, yet several members have for several years taken part in the work of instruction in the University. Students have thus had excellent opportunities for the observation of field and laboratory experiments in connection with their studies in agriculture. A large and well equipped building has been provided for the use of the station workers, and an experimental farm of over one hundred acres has been recently purchased.

John A. Myers, Ph. D., served as director until the year 1897, when he was succeeded by James H. Stewart, A. M. Under the supervision of Director Stewart, the efficiency of the institution has been increased, a thoroughly equipped staff of investigators has been selected, and a harmonious understanding has been entered into with the various local societies of fruit growers, stock breeders, and other like organizations. Since the organization, a large number of bulletins and reports have from time to time been issued and gratutiously distributed and these have had an important influence upon both the agricultural and educational development of the State.

THE COLLEGE OF AGRICULTURE IN THE WEST VIRGINIA UNIVERSITY.

In conclusion we wish to say that the West Virginia College of Agriculture, as one of the departments of the University, has now passed the experimental stage and has demonstrated its right to stronger and more vigorous financial support. Whenever the State and the University authorities are willing to spend money and otherwise adequately support the College of Agriculture, it will measure up to the stature desired for it by the farmers of the State. Its greatest need at present is a building devoted to the housing of the College of Agriculture, and the farmers of the State should see to it that the next Legislature provides for this. The College of Agriculture is making all the progress conditions will permit.

HORTICULTURE.

Successful fruit culture in any region depends first upon the adaptation of the soil to the growth of the several varieties of fruit trees; and secondly upon the life or longevity of the trees. In short, Horticulture as applied to fruit growing, can only be profitable where the trees grow luxuriantly and live long.

The Native Fruits of West Virginia:—Before the advent of white men into the unknown wilds, West Virginia was a land rich in native fruits, some of them of fine flavor and excellence. The Indians, the first trappers, and the pioneers valued them highly and made good use of them. As they were evidence of the presence of a soil and climatic adaptation, and prophetic of the great fruit industry now growing up among us, it is not out of place to briefly make some reference to them—perhaps a record is better—and this seems the more important in view of the fact that the Pomological Division of the Department of the Interior has taken up this subject and is making collections and urging the improvement of indigenous fruits by selection, by hybridizing, and by cultivation; and that some of our best fruits have been thus produced.

Chief among the wild native fruits of West Virginia are the following: the Wild Crab Apple—*Pyrus coronaria.* Its shape is symmetrical and when in flower the sweet perfume fills the air and nothing then excels it in beauty. The Wild Plum—*Prunus Americana*—was found all over the State. When in bloom the "plum groves" were masses of creamy beauty, and the fruit of great value, especially was it so to the first settlers. Many of our most valuable cultivated plums have been developed from a wild parentage. The Wild Cherry—*Prunus serotina*—grew to a gigantic size everywhere from the crest of the Alleghenies to the banks of the Ohio. The Grape Vine covered the forests until it almost shut out the light of day. Of its varieties, the Fox Grape—*Vitis labrusca,* the Summer Grape—*Aestovalis,* and the Winter Grape—*Cordifolia*—called also Frost or Chicken Grape, were the most useful to the early settlers. The Flat-topped Thorn Apple, or Cockspur Thorn—*Crataegus crus-galli*—with its dense masses of flowers was especially striking in June, and its fruit often hunted under the snows of winter. The Black Haw—*Viburnum prunifolium*—grew along all the streams flowing toward the Ohio. The Red Haw—*Crataegus flara*—and the Scarlet Fruited Haw—*Crataegus coccinia*—were both widely extended over mountain and valley. In the month of May, before the forests were clothed in their green leaves, a snowy white flowering tree dotted all the landscape on every hand. This was the Shad Bush, or June Berry, or Service Berry—*Amelanchier canadensis*—which in June presented an abundance of inviting fruit. The Mulberry—*Morus rubra*—grew all over the State and produced much fruit. Everywhere the Persimmon—*Dyespyrus Virginiana*—might be seen, its fruit needing the frosts of autumn to ripen it. The Paw-paw—*Asimina triloba*—covered the river bottoms and rich hillsides extending over the whole Ohio Valley section. Then, too, here, there, and

everywhere, were seen clumps of Elder—*Sambucus canadensis*—with its snowy bloom and its rich purple fruit of the autumn time. Of the smaller fruits there were the Wild Blackberry—*Rubus Villosus;* the Black Raspberry, or Thimble Berry—*Rubus occidentalis;* the wild Strawberry—*Fragaria Virginiana;* the Dewberry—*Rubus canadensis;* the Blue Huckleberry—*Gaylussacia dumosa;* the Black Blackberry—*Gaylussacia resinosa;* and the buckberry, or Box Huckleberry—*Gaylussacia brachycera.* Verily West Virginia was a land of native fruits, not excelled in variety, quality, or quantity, anywhere in America. The original settlers as they felled the forests about their cabin homes, were careful not to destroy these native fruits and the crab apple, wild plum, service and mulberry trees, and many others were left standing in the "clearing." Thus it was that:

"The wild grape by the river side,
And other wild fruits trailing low,
The table of the woods supplied."

The Seedling Fruits of the State:—Fruit culture began at an early date in Virginia. In 1636 the House of Burgesses passed an act requiring all farmers to plant orchards. This was done as civilivation advanced to the Blue Ridge, along the eastern base of which is the Piedmont Region now developed into one of the foremost fruit growing regions of the United States. From there and from another fruit growing region—Pennsylvania—men and women came a hundred and fifty years ago to find homes in the West Virginia wilderness. It is said of these and those who came after them that nothing more thoroughly and painfully accentuated their isolation than the absence of fruit trees around their newly made cabin homes. Little wonder that this was so; for half the pleasure that brightens the life of youth and childhood, it is not too much to say, is found in the orchard of the old homestead. These frontiersmen when they came brought bundles of scions or a bag of seed with them as they came and ere long the seedling trees were growing on the "improvements" made by them. As early as 1730, apple trees had been planted in the Eastern Pan-Handle. In 1745 several varieties of fruits had been planted in the Valley of the South Branch of the Potomac. Young apple trees were growing in Monongalia county as early as 1768, and there were bearing orchards there in 1779. In 1768, Rev. John Alderson planted an orchard on the site of the present town of Alderson, Monroe county—the first west of the Allegheny mountains—and one of these trees—a pear tree—is still bearing fruit. As early as 1769, pioneer settlers planted apple and pear trees in Richlands District,

Greenbrier county. In 1773 Ebenezer Zane had young fruit trees growing on the site of the present city of Wheeling, and ten years later apple trees had been planted on the Great Kanawha. Lewis Summers tells us in his journal that on July 1st, 1808, he saw "comfortable" orchards on the bottoms below Kanawha Falls. Ten days thereafter he saw a young orchard on Mercer's Bottom in Mason county, in which there were bearing peach trees. A few days later, bearing orchards at Vienna, in Wood county, attracted his attention; and at West Liberty, in Ohio county, he saw "bearing orchards of both apple and peach trees."

Transplanted to the fertile soils on the west side of the Alleghenies, these seedling trees, when carefully pruned, sheltered, and cultivated, grew luxuriantly and yielded their fruits abundantly. Man with them here won a victory over nature, and that, too, in a climate visited not only by genial warmth and sunshine, but by cold winds and seasons of ice and snow. Here by careful selection, he evolved from these seedling fruits imperial varieties which he caused to share his civilization, and to bear the impress of an existence far removed from their natural state.

They were long-lived trees. In many counties of the State may be seen apple and pear trees, planted from fifty to seventy-five years ago, and some have been standing for a hundred years and more. Some of these old seedling orchards which were standing forty years ago and have now disappeared did not decay, but were cut down to give place to better varieties. Many of these trees attained an enormous size. One seventy years old, standing on a lot in the upper part of Charleston, measures nine feet and one inch in circumference three feet above the ground. Several in an orchard in Mason City, in Mason county, measure ten feet in circumference. Another on the farm of William H. King, on the north bank of the Great Kanawha fourteen miles from its mouth, has been standing for eighty years and is eleven feet and four inches in circumference three feet from the ground. It is sixty feet in height and its foliage from sixty to seventy feet in diameter before the limbs were broken off recently by a storm. The trunk appears to be perfectly sound. It bears annually a white seedling apple in great quantities. On Elk river and other sections of the State apple trees more than twelve feet in circumference are still bearing fruit.

The Improved Fruits:—Forty years ago, West Virginians, in addition to wise selection, began to improve the seedling stock by grafting and budding. Then the next step was the purchase of the best nursery stock to be obtained in other States. This created a demand for home nurseries—that is West Virginia nurseries—and to-day almost the entire supply of nursery stock is "home grown." This is shown by the following

LIST OF WEST VIRGINIA NURSERIES.

NAME.	LOCALITY.	ACREAGE, APPROXIMATELY.
J. P. Ankrom & Son	Charleston, W. Va.	One.
J. K. Shephard	Spring Hill, W. Va.	Two.
Jacob Wise	Teays, W. Va.	Three.
H. W. Plumly & Son	Williamstown, W. Va.	Five.
G. W. Miller & Sons.	Moundsville, W. Va.	Twenty-five.
Garrettson & Moore	Ellenboro, W. Va.	Two.
Walter C. Snyder	Levels, W. Va.	One-fourth.
D. M. Dicken	French, W. Va.	One-fourth.
M. I. Stranes	Romney, W. Va.	One-fourth.
G. P. Miller & Bro.	Paw Paw, W. Va.	Four.
W. A. Duckworth	Duckworth, W. Va.	Two.
Fry & Chenoweth	Middleway, W. Va.	Four.
M. M. Hevener	Roanoke, W. Va.	One-half.
J. C. Markwood & Co.	Romney, W. Va.	Twelve.
W. H. Nash & Co.	Horse Neck, W. Va.	Fifteen.
L. A. Southern	Washington Bottom, W.	Twenty-five.
G. W. Southern & Sons.	Clarksburg, W. Va.	Sixty-five.
Henry H. Shinn	Central Station, W. Va.	Fourteen.
L. L. Shinn	Central Station, W. Va.	One-half.
R. H. Pigott	Central Station, W. Va.	One-half.
R. R. Harris	Harrisville, W. Va.	Fifteen.
J. L. Deem	Salsburg, W. Va.	One-fourth.
Vannest & Wingett	Ripley, W. Va.	One and one half.
The Gold Nursery Co.	Mason City, W. Va.	Sixty-five.
M. Schwartzwalder	Pliny, W. Va.	Three.

FRUIT STATISTICS OF THE STATE.

In the matter of statistics we have nothing later than the year 1900. There were then in the State 5,449,112 apple trees, producing 7,495,743 bushels of apples; 1,695,642 peach trees; 185,695 plum trees; 300,363 cherry trees, producing 87,828 bushels of fruit; and 393,256 grape vines, yielding 2,192,147 pounds of grapes from which were made 17,656 gallons of wine. Of small fruits cultivated, 387 acres of blackberries yielded 396,850 quarts; 50 acres of currants produced 51,340 quarts; 59 acres of gooseberries produced 66,340 quarts; 704 acres of raspberries produced 788,660 quarts; and 799 acres of strawberries produced 1,056,300 quarts. The total value of all these small fruits was $149,390.00.

THE WEST VIRGINIA HORTICULTURAL SOCIETY.

One of the most active organizations in the State is the West Virginia Horticultural Society. It was organized at Morgantown April 5, 1894, on the occasion of the dedication of the West Virginia Agricultural Experiment Station. Article II of its constitution declares that "Its object shall be to collect and disseminate information relative to fruit and other horticultural products and to promote the tastes of horticultural and rural embellishments among the people." This it is doing and it has given a mighty impulse to the fruit growing interests of the State. Eleven annual meetings have been held at almost as many different places and people from every part of the State have attended them. Among those most active in promoting the interests of this organization may be mentioned the names of S. W. Moore, of Mason county; Adolph Heihle, of Wood county; J. W. Garvin, of Ohio county; H. C. Hervey, of Brooke county; R. C. Burkhart and Alexander Clohan, of Berkeley county; J. H. Crawford, of Greenbrier county; Fred. E. Brooks, of Upshur county. The Society has been greatly aided in its work by Professors F. W. Rane, L. C. Corbett, K. C. Davis, and S. W. Fletcher of the West Virginia University.

AN OBSERVATION.

We are just beginning to grasp the wonderful resources of the State along horticultural lines, and as a result the planting of orchards is increasing each year and new territory is being developed and found favorable to fruit production. It is believed that there has been greater development here, in the last twenty years, than in any other country in the world. There are 18,000 square miles in the valleys and on the hills of West Virginia in every way adapted to the culture of all the fruits grown in this latitude, producing these fruits of the finest quality and in the greatest luxuriance. These West Virginia fruits have been awarded medals and premiums in Paris, Boston and elsewhere, and to-day they are finding a place in the markets of the world, notwithstanding they are grown in a region which furnishes one of the best home markets, for both demand and price, to be found anywhere.

THE LIVE STOCK INTERESTS OF WEST VIRGINIA—VARIOUS ORGANIZATIONS.

The history of the beginning and development of the live stock interests of West Virginia would make a volume. The first settlers brought cattle, horses, hogs and sheep to their wilderness homes. In 1774 when Lord Dunmore was mustering his army near Winchester for the invasion of the Indian country north of the Ohio, Captain James Parsons rode up and down the South Branch Valley and collected beef cattle for that army. It is estimated that in 1826, $10,000 worth of cattle and hogs were sold by the people of Monongalia county alone. The extensive grass lands determind the capacity of the State for the breeding and permanent improvement of live stock. Here in West Virginia, climate, soil, water, grass, and grain are in the highest degree favorable to stock farming as a business, complete in all its branches, and susceptible of every improvement elsewhere attained. Great advancement has been made. Durham cattle were introduced into the western part of the State in 1850; this was followed by the introduction of short-horn cattle, and then the Alderney, Jersey, and other breeds until to-day some of the best cattle in the world graze upon the West Virginia hills.

THE WEST VIRGINIA LIVE STOCK ASSOCIATION.

This is an organization which is now accomplishing a great work, representing as it does the largest branch of Agriculture in the State. It was organized at Charleston, January 31, 1901, at which time Honorable J. A. Ewart, of Raleigh county, was chairman of the meeting. Among those most active in the work of the Association are Honorable C. C. Brown, of Kanawha county; Peter S. and Charles C. Lewis, of Mason county; W. D. Zinn, of Barbour county; and H. E. Williams, of Greenbrier county. The last named is the present Secretary and has in hand the preparation of "A Live Stock Directory of the State."

STATISTICS:—Figures and their combinations present most clearly actual conditions and results in every department of industrial activity.

CATTLE:—By the last United States Census it is shown that 89,183 farms in West Virginia reported the total valuation of domestic animals to be $29,231,832. On 83,235 farms there were 639,782 head of cattle valued

at $14,058,427, the average being $21.97. On 53,294 farms sales of Live Stock were reported aggregating $6,533,034; while 72,705 reported the value of slaughtered animals thereon at $2,895,032.

Horses, Colts and Mules:—74,254 farms reported 185,188 horses and colts worth $10,276,550, and 11,354 mules valued at $725,134.

Swine:—The first settlers brought hogs with them to the Eastern Pan-Handle, the old part of West Virginia. From Kercheval's "History of the Shenandoah Valley" we learn that about the year 1750, Lord Fairfax, happening to be at Winchester in the Shenandoah Valley, one day observed a drove of very fine hogs and enquired whence they came. He was told that they were brought from the Valley of the South Branch of the Potomac; he remarked that when a new county should be formed to the west of Frederick to include that Valley, it should be called Hampshire from the county of that name in England, so celebrated for its fat hogs. His suggestion thus gave a name to the oldest county of West Virginia. By the last census it appears that on 73,498 farms in the State there were 442,844 hogs of all ages worth $1,389,804, and average value of $3.14.

THE WEST VIRGINIA DAIRY ASSOCIATION.

An organization destined to accomplish much good for the State is the "West Virginia Dairy Association", which was organized at Morgantown on the 15th of January, 1904, with J. R. Wells, of Tyler county, as President; J. A. Ewart, of Raleigh county, Vice-President; W. K. Brainard, of Morgantown, Secretary; and a membership of twenty persons interested in the object of the association. The dairy industry, as a distinct business, is comparatively new in West Virginia. In the past there were no great cities to develop it. But now that the State has become a busy hive of industry—great mining enterprises and industrial centers everywhere—a great demand for dairy products, at good prices, has been created and henceforth this will be a very profitable industry.

Statistics:—By the last census there were 205,601 milch cows on West Virginia farms, which produced 83,861,660 gallons of milk, of which there were sold 3,391,523 gallons of milk and 38,855 gallons of cream. Of butter, 16,913,129 pounds were made, of which 5,520,784 pounds were sold. Of cheese, 74,243 pounds were made and of this 60,842 pounds went to market. The total value of these products was $5,088,153; of this $3,688,346 worth were used on farms, and $1,399,807 worth were sold in the markets. Though the industry was in its infancy in the year 1900, the State ranked 30 in dairy products.

THE SHEEP INDUSTRY—THE WEST VIRGINIA SHEEP BREEDERS AND WOOL GROWERS ASSOCIATION.

On the 4th of November, 1770, George Washington was at the mouth of the Great Kanawha river. He says in his Journal, "At this place we met a canoe going to Illinois with sheep." These had doubtless been driven from the Shenandoah Valley to the navigable waters of the Great Kanawha, and were being taken to the "Illinois Country". Sheep were early brought into the wilds of West Virginia where, for quite a hundred years, they were protected against the attacks of wild animals that they might furnish the wool from which the clothing of the early settlers was made. The first improvement on old breeds was the introduction of the Marinos. These were followed by the South Downs, the Devonshires, Shropshires, and others, until to-day, some of the best sheep in America are to be found in West Virginia.

The West Virginia Sheep Breeders and Wool Growers' Association is another organization that has done much to promote one of the important business interests of the State. A number of the prominent sheep breeders and wool growers of the State assembled at the Swan House in Parkersburg, December 12, 1879, and after discussing the advantages of West Virginia as a wool-growing State, and the benefits of united action, effected an organization since known as the West Virginia Sheep Breeders and Wool Growers Association. Those most active in promoting its objects are Samuel C. Gist and James B. Beall, of Brooke county; A. R. Jacob, of Ohio county, and Professor A. D. Hopkins, of Monongalia county.

Wool growers assert that the quality and quantity of wool produced depend much upon the character of the soil on which the sheep range. Apropos to this the following from the "West Virginia Geological Survey", Vol. II, p. 102, is important: "The soil formed by the disintegration of the Dunkard beds has the reputation of producing a fine quality of wool in which the fiber is peculiarly firm and strong, so that its area is often known as the 'Sheep Belt' of West Virginia, since probably ninety per cent. of the sheep raised in the State are grown upon the out-crop of the Dunkard Series. These rocks occupy a belt forty to sixty miles in width, bordering the Ohio river and extending from the same over portions or all of the following counties: Hancock, Brooke, Ohio, Marshall, Wetzel, Tyler, Monongalia, and Marion (west of the Monongalia river), western Harrison, and Lewis, Doddridge, Pleasants, Wood, Wirt, Ritchie, Calhoun, Gilmer, Roane, Jackson, and the uplands of Mason and Southern Putnam, but tailing out into a narrow belt which soon overshoots even the highest hills of Wayne,

a short distance east of the Big Sandy river at the Kentucky boundary". Such is the "Wool Belt" of West Virginia.

STATISTICS:—In 1900, there were on 30,266 West Virginia farms, 968,843 sheep, valued at $2,664,556, an average of $2.75. From these 587,381 fleeces were shorn, weighing 3,123,455 pounds, valued at $636,012.

THE POULTRY INTERESTS OF WEST VIRGINIA—THE WEST VIRGINIA STATE POULTRY ASSOCIATION.

In poultry and egg production, West Virginia takes a leading place. Indeed but few people residing within the State have any conception of the extent of this industry. The farmer is often unaware of the advantages to be derived from good poultry, although there is probably no branch of animal industry which pays better. Nowhere else it is more profitable than in West Virginia, for the recent development of our vast material resources and consequent increase in population has created a local or home market—a pressing demand and high prices—which now make the business very profitable, and this will increase in the years to come. Comparisons show that the prices in West Virginia are sixteen per cent. higher than in Illinois and some other States.

The West Virginia State Poultry Association is doing much to promote the object of its organization which is declared to be "To encourage an interest and promote improvement in all that pertains to the Poultry Industry". It was organized at Charleston, January 31, 1901, and since then has been actively at work so that there are now numerous county associations or branches of the State organization. J. T. Garrett, of Putnam county; A. I. Spencer, of Wood county; H. D. Correll, of Monongalia county; F. A. Rundle, of Cabell county; and W. H. Lewis, of Harrison county, have been most active in advancing the good work of the Association.

STATISTICS:—By the census of 1900 there were in the State 2,759,585 chickens; 105,265 turkeys; 129,948 geese; and 58,373 ducks; the total value being $963,805. The value of poultry raised the preceding year was $1,813,752, and at the same time, 17,249,400 dozen eggs were produced worth $3,449,880.

MANUFACTURING INDUSTRIES.

The path of the human race is upward and this advance must be hewn through material development. To trace this development through all its evolutions in West Virginia from the country blacksmith shop, the whip-saw, the jack-plane, the hominy-block, and the hand-loom of former days to some of the largest manufacturing establishments now in the world, and within her borders, would be to write a volume. Instead of this, but brief mention can be made here of that industrial enterprise which gives to the State a place in commerce and trade.

THE LEADING MANUFACTURING INDUSTRIES OF WEST VIRGINIA.

The ten leading manufacturing industries of the State are (1) Lumber and Timber Products; (2) Iron and Steel; (3) Leather, tanned, curried, and finished; (4) Coke; (5) Clay Products, including bricks, tile, pottery, terra cotta, and fire-clay; (6) Flouring and Grist Mill Products; (7) Glass and Glassware; (8) Car Building, with shop construction repairs; (9) Foundry and Machine Shop Products; (10) Lumber and Planing Mill Products. Let us notice these in the order named as shown by the census of 1900.

1. Lumber and Timber Products:—The State has nine hundred and fifty establishments valued at $10,421,570; the lands being worth $3,158,-542; the buildings valued at $468,866; and tools and machinery, the latter representing 31,316 horse-power, estimated at $3,123,128. Raw material used was valued at $5,584,717, and the finished products worth $10,612,837.

Iron and Steel Products:—Eleven establishments having an invested capital of $8,202,910; the cost of raw material used was $10,422,322; and the product valued at $16,514,212.

3. Leather, Tanned, Curried and Finished Products:—Forty-six establishments; capital invested, $5,049,615; the raw material used costing $2,541,197; the finished products valued at $3,210,753.

4. Coke:—One hundred and seven establishments; invested capital $4,452,579; the cost of raw material $1,966,682; the finished products valued at $3,529,249.

5. Clay Products of Brick, Tile, Pottery, Terra Cotta and Fire Clay:—Fourteen establishments with an invested capital of $2,219,-842; cost of raw material, $316,103; the finished product valued at $3,541,229.

6. Flouring and Grist Mill Products:—Seven hundred and thirty-seven establishments; capital invested $2,126,470; cost of raw material, $4,555,003; value of finished products, $5,441,553.

7. Glass Products:—Sixteen establishments; invested capital, $1,338,084; cost of raw material, $595,251; value of finished products, $1,871,795.

8. Car Building and General Shop Construction and Repairs:—Twenty-three establishments; capital invested, $1,040,311; cost of raw material, $1,586,916; value of finished products, $2,943,557.

9. Foundry and Machine Shop Products:—Sixty-two establishments; capital invested, $877,401; cost of raw material, $666,244; value of finished products, $1,104,852.

10. Timber and Planing Mill Products, including Sash, Doors, and Blinds:—Eighty-three establishments; capital invested, $803,675; cost of raw material, $1,199,914; value of finished products, $1,820,463.

Thus it appears that in the ten leading manufacturing industries of the State, in 1900, there were 2,061 establishments; an invested capital of $36,532,455; the cost of raw material, $27,382,349; and the total value of the finished products, $48,987,302.

MINOR MANUFACTURING ESTABLISHMENTS IN THE STATE.

Vast as are the leading industries of the State enumerated above, they represent but little more than fifty per cent. of the manufacturing enterprise. This is shown by the fact that West Virginia has 4 awning and tent factories; 16 bicycle and tricyle repair shops; 580 blacksmithing and wheelwright shops; 116 boot and shoe custom work and repair shops; 9 beer, mineral and soda water bottling establishments; 3 paper box factories; 5 wooden box factories; 3 brass casting and brass furnishing establishments; 58 bread and other bakery establishments; 93 carpenter and cabinet shops; 4 carriage and wagon material shops; 80 carriage and wagon building and repair shops; 4 cheese factories; 116 men's clothing and repair shops; 3 clothing factories; 47 women's clothing and dress-making establishments; 4 coffee and spice roasting and grinding establishments; 17 candy and confectionary establishments; 9 dyeing and cleaning establishments; 5 dye stuffs and extract factories; 9 fruit canning and preserving establishments; 43 furniture and cabinet making, repairing, and upholstering shops; 8 furniture factories; 8 gas fitting and heating establishments; 8 ice factories; 1 architectural and ornamental iron works; 2 hosiery and knitted goods establishments 1 dye textile establishment; 1 cotton hosiery knit goods

establishment; 2 hand stamp factories; 1 grease and tallow, axle-grease, and soap establishment; 1 chemical works; 1 glue factory; 1 gas machine and meter factory; 1 cutlery, staining and ornamental glass works; 1 fur hat establishment; 1 fertilizer manufacturing establishment; 1 explosives establishment; 2 broom and brush factories; 1 metal bridge factory; 1 brass factory; 1 cigar-box factory; 1 baking and yeast powder factory; 1 basket, rattan, and willow-ware factory; 1 agricultural implements factory; 7 lime and cement factories; 3 liquor distilleries; 8 malt liquor establishments; 1 vinous liquor establishment; 5 lock and gunsmithing establishments; 5 looking-glass and picture-frame establishments; 9 marble and monument works; 39 brick and stone works; 2 mattress and spring bed factories; 127 millinery custom work establishments; 19 mineral and soda water establishments; 1 models and patterns making establishments; 25 monument and tomb-stone establishments; 43 house and sign painting establishments; 6 paper and wood-pulp mills; 3 paper hanging establishments; 5 patent medicine and compounds establishments; 1 petroleum refining establishment; 52 photographic establishments; 5 pickle, preserves and sauces factories; 12 plastering and stucco works; 46 plumbing gas and steam fitting establishments; 31 book binding and job printing establishments; 1 society regalia and banner house; 21 roofing and roofing material establishments; 126 saddlery and harness establishments; 5 salt furnaces; 1 sewing machine repair shop; 4 boat building establishments; 1 shirt factory; 3 meat packing establishments; 1 stamped ware establishment; 1 glove and mitten factory; 3 pump factories; 2 tin and terne plate establishments; 57 tin smithing and iron roofing establishments; 4 tobacco, chewing, smoking, and snuff factories; 72 cigar and cigarette factories; 5 tool factories; 1 toy and games establishment; 2 upholstering materials establishments; 4 vinegar and cider factories; 89 watch, clock, and jewelry establishments; 1 whip factory; 2 wire factories; 2 wire works, including wire rope and cable; 8 wood turning and carving establishments; 1 worsted goods factory; 10 lamp-black factories; and 1 lithographing engraving establishment.

OBSERVATIONS.

There were 2,357 of these minor manufacturing establishments, having an invested capital of $23,467,545; the finished products being valued at $25,851,020. If we add these totals of the minor establishments to those of the ten leading industries, we have a grand total of 4,418 establishments; an invested capital of $60,000,000; and a valuation of finished products of

$74,838,330. Because of the rapid increase of every industrial line, it may be safely said that these figures may, at this time—April 30, 1904—be increased by at least twenty per cent. This means that while our manufacturing industries are still in their infancy, there are now in the State, in round numbers 5,000 manufacturing establishments, with $75,000,000 of invested capital, and a finished product of $100,000.000. In these establishments 50,000 employees receive annually $15,000,000 in salaries and wages.

The two elements essential to successful manufacturing are (1) cheap and abundant raw material, and (2) cheap and abundant fuel, and nowhere else in the world are theese cheaper or in greater abundance than in West Virginia—the richest, to-day, in coal and natural gas, of all the American States. This means a busy hum of industry in the years which are to come; safe investment with profitable returns for the capitalist; and steady employment, at good wages, for the working man.

TRANSPORTATION FACILITIES.

RIVER NAVIGATION—RAILROAD FACILITIES.

RIVERS.

West Virginia is a land of rivers. The Ohio—one of the most majestic rivers of the continent—washes its western border for nearly three hundred miles, and it and the Mississippi have long been and are to-day, the cheapest coal carriers of the world. Four navigable West Virginia rivers—the Big Sandy, Great Kanawha, Little Kanawha, and Monongalia—all locked and dammed by the National Government, and having an aggregate of nearly three hundred miles of steam navigation, cut through the coal fields of the State and flow down into the Ohio. Thus the whole of the vast Mississippi Valley is open beyond controlling competition to the trade of this region—and this advantage will for centuries to come, be open to the coal fields of West Virginia, and to the products of her forests, factories, fields, and orchards as well.

RAILROADS.

The development of the resources of the State was long retarded for want of transportation, but that time has gone by and now West Virginia has become a railroad State. The Baltimore & Ohio is her oldest line. Its

corner-stone was laid at Baltimore, July 4, 1828—the Nation's birthday—by Charles Carroll, the last survivor of the signers of the Declaration of Independence. Work was prosecuted and the shrill scream of the locomotive was heard for the first time at Harper's Ferry, in Jefferson county, December 1, 1834. Years of work followed and the track was at last closed and the last spike driven at "Rosbby's Rock", seven miles east of Moundsville, in Marshall county, December 24, 1852. On the evening of January 1, 1853, the President of the road, with his invited guests from the State of Maryland and Virginia, arrived in Wheeling, having been carried thither by the first through train from the Atlantic ocean to the Ohio river. The construction of the branch from Grafton to Parkersburg was commenced in December, 1852, and opened to the latter city, May 1, 1857. Such were the first railroads constructed in West Virginia.

A second trunk line across the State, the Chesapeake & Ohio Railway, was completed January 29, 1873, when at 3 o'clock p. m., on that day C. R. Mason drove the last spike on the east end of the bridge over New river, at the Hawk's Nest, in Fayette county. W. C. Wickham, President of the road, with his invited guests, was waiting to pass to the West. Rev. William R. Jones, who had been a chaplain on the staff of Stonewall Jackson, delivered an address. Then the train proceeded to Huntington, where that night there was a great demonstration, one of the features being the pouring into the Ohio of a barrel of James river water, brought from Richmond for that purpose.

A third trunk-line across the State, the Norfolk & Western Railroad, was opened through to the Ohio river in 1892, the track being closed near Hatfield Tunnel, about eight miles east of Williamson, in Mingo county, on the 12th of November of that year.

Since the construction of the first and second of these lines and with the completion of the last, there came an era of railroad building in the State, and now they extend to almost every portion of it. They penetrate fifty-one of the fifty-five counties. The four not yet reached are among the wealthiest ones of the State and soon, very soon, the shrill whistle of the locomotive will reverberate among their hills and valleys. Now these roads extend east and west and north and south. They follow the winding course of the rivers; rush under mountains; cross the Cumberland Plateau; and traverse the Allegheny Highland, where there are depots and stations more than three thousand feet above the level of the sea. Now they bear away to the great cities and marts of trade everywhere, the products of the whole State.

On the 30th of June, 1903, there were within the State, 2,309 miles of main line trackage; 98 miles of branch line trackage; 313 miles of second main line trackage; and 931 miles of siding. The total valuation, for taxation, of all railroad property in the State, was on that date, $26,527,999.35. These roads paid a State tax of $57,497.37; a State School tax of $22,998.96; a County tax of $190,315.68; a Magisterial District tax of $165,257.81; and a Municipal tax of $34,025.97; a total tax of $470,095.79. Such are the West Virginia railroad interests to-day. The total street car lines of the State aggregate 98 miles, and their total property is valued at $916,019.00.

COUNTIES AND CITIES OF THE STATE.

WHICH HAVE SUBSCRIBED FOR SPACE IN THE HAND-BOOK AT THE REQUEST OF THE WEST VIRGINIA COMMISSION.

(FOR DATA RELATING TO THE INDIVIDUAL COUNTIES, SEE PAGE 55.)

AN EXPLANATION.

The gentlemen composing the West Virginia Commission of the Louisiana Purchase Exposition were desirous of presenting more in detail the resources, productions, and advantages of the State than could be done in the general part—the first three hundred and twenty-four pages of the Hand-Book—and being much hindered because of the limited means at their command, resolved at their meeting at Parkersburg, August, 1903, to propose to the courts of the counties in the State that they subscribe and pay for space—from one to three pages—in the Hand Book in which to exploit the resources, productions, and advantages of their several counties. Accordingly this proposition was made in writing to the clerks and members of the various county courts and additional matter was presented to a number of them in person. All did not accept the proposition, but the Commission was singularly fortunate because of its acceptance by counties the geographical position of which renders them representative of the sections in which they are located, and their distribution may therefore, be taken as reflecting the best possible view of the resources, productions and advantages, not only of the adjoining and adjacent counties, but of the entire State. This will appear more fully from the counties which have subscribed for space. That is to say:

1. Tyler, Ohio, and Hancock counties on the Upper Ohio and in the Northern Pan-Handle.

2. Taylor, Marion, Harrison, and Monongalia counties in the Monongahela Valley.

3. Jefferson, Berkeley and Morgan counties on the Potomac river in the Eastern Pan-Handle.

4. Calhoun and Gilmer counties in the Valley of the Little Kanawha river, and Webster county in the Elk river Valley.

5. Fayette and Kanawha counties in the Valley of the Great Kanawha river.

6. Monroe and Greenbrier counties in the mountain region in the south-eastern part of the State, in the Greenbrier river Valley.

7. Cabell and Mason counties on the Ohio river in the southwestern part of the State.

8. Logan, Mingo, and McDowell counties in the southern part of the State, in the valleys of the Guyandotte and Big Sandy river Valleys.

In addition to the foregoing counties, the cities of Wheeling, Charleston, Huntington, Fairmont, Clarksburg, and Point Pleasant have subscribed for space in which to present their advantages as manufacturing centers, with the best of transportation facilities, etc. Both the counties and cities are treated in the order named, in the following pages:

TYLER COUNTY.

Tyler county, created in 1814, and named in honor of John Tyler who had been governor of Virginia in 1808, has an area of 300 square miles and within its borders dwell 18,252 of the State's population. The county has a frontage of fifteen miles on the Ohio river—the great water way to the West—and is the second county south of the Northern Pan-Handle. The inland surface is diversified with hills and creek valleys, and there are many rolling and level farms along Middle Island creek. Throughout its whole extent the soil is very fertile and is well adapted to cultivation.

The taxable value of the real estate of the county is $2,538,915.00; of personal property, $3,288,175.00; a total of $5,827,090.00. On this amount $14,597.30 are assessed for general State purposes, and $5,846.67 for general school purposes.

Tyler county has an efficient educational system for which it provides most liberally. There are 102 schools in which 128 teachers are employed and for the support of these $54,799.22 were expended last year.

In 1902, Tyler county reported 3,887 horses and mules valued at $170,450.00; 6,602 cattle valued at $109,068.00; 4,908 sheep valued at

$9,628.00, and from these 40,480 pounds of wool were clipped; 14 Angora goats; and 2,265 swine; the estimated value of the live stock being $619,664.80. In addition to this, her poultry numbered 54,431 and was valued at $16,132; during the year 1900 poultry to the value of $28,817.00 was raised, and the number of eggs produced was 385,930 dozens. The United States Census for 1900 showed that Tyler county had 1,618 swarms of bees valued at $6,509.00; and that the product of honey amounted to 20,580 pounds. For the same year the county reported 4,238 milch cows besides 108 dairy cows.

In 1902 there were sown in Tyler county 2,185 acres in wheat, producing 13,065 bushels; 906 acres in oats producing 9,960 bushels; 5,180 acres in corn, producing 316,500 bushels; 8 acres in buckwheat producing 120 bushels; 276 acres in Irish potatoes producing 8,471 bushels; 21 acres in Alfalfa producing 37 tons; total value of these crops, $299,825.00.

For the same year Tyler county reported 50,970 bushels of apples, 94 bushels of pears, 224 bushels of cherries, 365 bushels of plums, all being valued at $35,292.00. In addition, 28 acres were planted in small fruits, the product of which sold for $1,600. The value of the forestry products for 1900 was $26,356.00.

Middlebourne, the seat of justice, is situated on Middle Island creek, ten miles from the Ohio river. Sistersville, the metropolis of the county, forty-seven miles below Wheeling and forty-six above Parkersburg, is on the Ohio river, on the Ohio River Division of the Baltimore & Ohio Railroad. Of this road there are in the county 13.83 miles of main line trackage and 2.74 miles of sidings, valued with rolling stock and other railroad property for taxation, at $112,712.71.

Tyler county is well adapted to cattle raising, to fruit growing and to agriculture. But her present chief source of wealth lies in her excessively productive oil and gas fields, the little city of Sistersville, with its more than 5,000 inhabitants lying in the center of the richest oil field in West Virginia.

The fertility of the soil, the cheapness and convenience of the fuel, the excellent transportation facilities both by rail and river and the marvelous production of the oil and gas fields render Tyler County a desirable place for the capitalist seeking profitable investments and for the home-seeker as well. Business, with its attendant growth of population and wealth is rapidly on the increase and this will continue.

OHIO COUNTY—CITY OF WHEELING.

The county of Ohio, the oldest in the State which borders on the river of that name, was formed from the "District of West Augusta" in 1776—the year of American Independence.

THE CITY OF WHEELING.

Wheeling, the metropolis of West Virginia, is in Ohio county on the east bank of the Ohio river opposite Wheeling Island, the most important in that river. The city was founded in 1772 on a site afterward famous in the Indian and Revolutionary wars.

The advantages of Wheeling District for the location of manufactures are unexcelled; and as a distributing point and bringing the completed products to market with small cost, are unexceptionable. The principal industry, therefore, is manufacturing, and in this it is surpassed by few if any cities of its size in the world. Indeed, it is said to be the richest city of its size in the Union and its business interests stand as solid as the iron and steel its mills are making. While the city proper contains a population of about 40,000, her suburbs in Ohio and West Virginia give her additional population of a hundred thousand to draw upon through her well equipped street car systems. In the field of manufacturing and industrial pursuits Wheeling's position is becoming more prominent each year. Her natural advantages for manufacturing purposes are the very best in the United States.

1. Abundant and cheap fuel, both coal and natural gas.
2. Ample and competitive shipping facilities, both by river and rail, freight rates being the same as at Pittsburg.
3. Convenience to markets.
4. Proximity and supply of raw material.
5. Abundance of labor, both skilled and common.

The Ohio Valley is lined with manufacturing plants largely operated by Wheeling capital, being such independent concerns as the La Belle Iron Works, the several plants of the Wheeling Steel and Iron Company, the Whitaker Iron Works and Corrugating Company; also the Mingo, the Laughlin, Aetna-Standard, Bellaire Steel Works, and the Riverside Works of the United States Steel Corporation. The Crystal, Eagle, Imperial, West Virginia, Century, Central, North Wheeling, Glass Letter and Novelty, Fostoria and Norwood glass-making establishments, and other plants such as the Can, Mold and Foundry, Bridge and Construction Com-

panies, breweries, pork packing, fruit preserving establishments, have recognized its advantages and are established in this District.

The manufacture of tobacco, cigars and stogies is one of the most important industrial interests of the city, the Wheeling stogie and scrap being known wherever there are chewers and smokers. The "Wheeling Stogie" has long had a national, almost a world-wide reputation. In the manufacture of pottery the following concerns take first place among the establishments of the country: The Wheeling, Warwick, Riverside and Vance Faience.

The commercial importance of the city is typified by sixteen solid banking institutions, with an aggregate capital of $1,555,000.00. The railroad facilities of Wheeling District are unsurpassed, comprising as they do the Cleveland & Pittsburg; P., C., C. & St. L.; Cleveland, Loraine & Wheeling; Wheeling & Lake Erie; Baltimore & Ohio; Bellaire, Zanesville & Cincinnati, and Ohio River roads. Wheeling is distant from Pittsburg 66 miles, Cleveland 140, Toledo 221, Columbus 142, Cincinnati 258, Washington 353, Baltimore 393, Philadelphia 420, New York 510 miles, these lines giving her lake and seaboard outlets. The taxable value of real and personal property in the city is $24,000,000.00.

The street railway systems covering about eighty miles, are practically perfect in the facilities they afford, not only for getting about the city proper but for reaching suburban points as well.

The volume of business carried on in the jobbing district of the city, it is conservatively estimated, amounts to upwards of $20,000,000.00 per annum, and $10,000,000.00 worth of merchandise is annually sold in the retail stores. Many things might be mentioned to attract attention, among them the efficient police and fire department, excellent water supply, superior educational advantages, hospitals, both public and private, electric lighting, public library, strong fraternal, religious and social organizations, magnificent churches, theatres, parks, four enterprising daily newspapers, and an orderly home owning, hospitable people. No attempt is made in this sketch to depict all the advantages of the District, which is so wonderfully equipped with nature's capital, namely, coal, natural gas, and river, to which is added man's capital, competing railroads.

A thick seam of good coal crops out of the hills around the city and almost overhangs the furnaces consuming it, and in the operation of the steel and iron mills last year 233,922 tons of coal were consumed and $75,729.00 were expended for natural gas used as fuel. The prosperity of the

city is largely due to its manufacturing interests and many millions of dollars are represented in the capital employed in industrial enterprise here. At one time, Wheeling was the greatest nail producing city in the Union and was given the name of the "Nail City". But now other manufacturing has taken its place and nail making is but a small part of the product of the city's factories. The manufacture of glass, now one of Wheeling's greatest industries, was begun in 1820, and nine years later, flint glass works were erected. By the census of 1900, there were sixteen glass manufacturing establishments in the State, nearly all of which were in the Wheeling District. The capital invested in these was $1,338,048.00; there were 1,949 wage earners to whom were paid wages aggregating $789,422.00; the miscellaneous expenses amounted to $112,791.00; material used cost $593,251.00; and the finished product was valued at $1,871,795.00. Glass produced by factories in and around Wheeling is exported to Australia, Canada, Mexico, England, South America, and South Africa.

The iron and steel manufacture of the State, like that of glass, is largely confined to Wheeling and its immediate vicinity. Its development here is largely due to the cheapness of fuel which is supplied from the neighboring hills, and natural gas is used in nearly all the rolling mills. Among the establishments are three blast furnaces—the only ones in the State—in which the invested capital aggregates $1,089,553.00; the annual production being 188,292 tons of metal, valued at $3,119,301.00.

By the census of 1900 it was shown that there were 406 manufacturing establishments of various kinds in Wheeling; that the capital invested in them was $13,224,570.00; that the number of wage earners employed therein was 7,219; that the miscellaneous expenses were $1,954,206.00; that the cost of material used was $9,076,978.00, and that the value of the finished product was $16,740,544.00.

The educational facilities of Wheeling are unsurpassed by any other city of its size in the United States. In addition to an excellent public school system, there are many private and parochial schools. In the former 10,701 pupils are enumerated, and 5,282 are enrolled. The Building Fund is $9,613.79; the Teachers' Fund, is $89,094.06; the two, exclusive of the city's share of the State Fund, aggregating $98,707.85 Institutions of higher education are the Wheeling Female Seminary, Wheeling Business College, the Academy of the Visitation at Mount de Chantal, and the Linsly Institute. (See pp. 127, 128, 132.)

The newspapers of Wheeling, because of their high type of journalism, honor not only the city but the entire State. Among these are the *Intelligencer,* daily and weekly; the *Register,* daily and weekly; the *News,* daily and weekly; the *Telegraph,* daily and weekly; the *Deutsche Zeitung* (German) daily; *Freiheit's Banner* (German) weekly; and the *Ohio Valley Manufacturer,* weekly.

From her infancy, Wheeling has enjoyed a prestige in the surrounding country for her culture. Her churches, her schools, public and private, her literary and social circles, her press, all have always compared with the best anywhere. Her streets and her business houses, her homes and public buildings are modern and tasteful. Her ministers are devoted men—her physicians are skilled; her lawyers shrewd and learned; her people progressive and public spirited. North and south of her on both sides of the river, is a population more than equal to her own, tributary to her—a homogeneous population of a hundred thousand souls which is, in all but nominal extent of the city limits, a part of the population of Wheeling. Easy access to the business establishments, the theatres, and other facilities of the larger city, have made Bellaire, Bridgeport, Martins Ferry, Benwood and other near by towns, all of considerable size, substantially parts of the greater Wheeling, and inured to the material advantages of them and her alike. Creditable as her position among the communities of America has always been, Wheeling is but entering upon the career which she is destined to have. An era of enterprise, of progress, of metropolitan energy and vigor is opening. On all sides, signs of it are seen, and as West Virginia moves forward in the line of her destiny, the metropolitan city will always be found abreast of the van-guard—possibly still a little in the lead.

OHIO COUNTY.

The prosperity of a city depends to a great extent upon the fertility and productiveness of the region surrounding it. Wheeling is fortunate in this for the soil of Ohio county responds generously to the tillage of the husbandman. Its area is 120 square miles; the total number of farms is 803: of this number 48 contains less than three acres; 106, three and less than ten acres; 84 ten and less than twenty acres; 136, twenty and less than fifty acres; 155, fifty and less than one hundred acres; 186, one hundred and less than one hundred and seventy-five acres; 62, one hundred and seventy-five and less than two and sixty; and 26 two hundred and sixty and less than five hundred acres.

In 1902, Ohio county had 3,188 acres sown in wheat with a production of 46,173 bushels; 4,032 acres in oats with a production of 107,698 bushels; 5,743 acres in corn, with a production of 238,430 bushels; 812 acres in Irish potatoes, yielding 55,950 bushels; and 10,122 acres in hay producing 9,989 tons. The total value of these crops were estimated at $350,940.60.

At the same time the county had 18,968 apple trees yielding 21,500 bushels worth $12,900.00; 2,531 pear trees yielding 1,217 bushels worth $937.60; 12,762 peach trees yielding 7,469 bushels, worth $5,983.20; 2,905 cherry trees yielding 1,502 bushels worth $3,004.00; and 5,475 plum trees yielding 1,124 bushels worth $2,248.00. The total product was worth $25,072.00.

In the same year there were in the county, subject to taxation, 2,703 horses worth $108,120.00; 4,818 cattle worth $96,360.00; 15,673 sheep worth $31,346.00, and 126,516 pounds of wool were sent to market; 4,187 swine worth $12,561.00. Of poultry there were 34,614 chickens, 929 turkeys, 672 geese, 673 ducks, total value of all being $15,391.00. The value of poultry raised the preceding year was $30,573.00, and 181,400 dozens of eggs were produced. The value of all dairy products was $231,056.00; this included 2,174,186 gallons of milk and 346,833 pounds of butter, of which 232,516 pounds went to market.

Ohio county has an excellent free school system. Outside of Wheeling there are forty-two schools, with an enumeration of 2,824 school youth and enrollment of 1,867 pupils in the schools. The District Building Fund amounts to $10,900.18; the Teachers' Fund to $13,824.09; the two, exclusive of the State Fund, aggregate $24,724.27. A branch of the State Normal School is located at West Liberty, eleven miles inland from Wheeling. (See p. 116.)

The total taxable of real estate, outside of Wheeling is $18,105,980.00; of personal property is $6,511,920.00; the total value of both, $24,617,900.00. There are large railroad interests in Ohio county. Within it, on the Pennsylvania Railroad are 11.29 miles of main line, and 7.88 miles of sidings valued at $231,797.50. On the Wheeling Terminal Railway are 5.71 miles of main line, and 7.06 miles of sidings, valued at $245,144.00. On the Baltimore & Ohio are 2.40 miles of main line, 2.40 miles of second main line, and 9.59 miles of sidings, valued at $105,011.25. On the Wheeling, Pittsburg & Baltimore Railroad are 14.29 miles of main line, and 3.22 miles of sidings valued at $140,134.08. On the Ohio River

Railroad are .31 miles of sidings valued at $5,275.00. This gives the county a total trackage of 64.18 miles valued by the Board of Public Works for taxation at $727,361.83. In addition to this there are in the county 11.35 miles of track of the Wheeling Traction Motor Line valued at $213,825.00. Of the Wheeling & Elm Grove Motor Line there are 4.64 miles in the City of Wheeling and 13.65 miles in the county outside that city, the whole valued at $196,123.00. Thus there is within the county, railroad property valued at $1,137,309.83.

Nowhere else in the broad expanse of the Ohio Valey is there a better field for profitable investment and for the artisan, mechanic, laborer, and homeseeker than Wheeling and Ohio county.

HANCOCK COUNTY

Hancock county formed in 1848 from Brooke, is the most northern county in the State it being the upper one of the northern Pan-Handle. Its area is 100 square miles, fully one-half of which lies north of the parallel of Pittsburg. In 1900, it had a population of 6,693. New Cumberland, the seat of justice, situated on the Ohio river, is the center of the chief fire clay, fire brick, and tile industries of the State. This gives rise to the industrial enterprise stretching for eight miles along the eastern bank of Ohio, teeming with life and business, and affording employment to hundreds of laborers. It is one continuous town of which New Cumberland may be called the center. Such a settlement as this upon the banks of the Rhine in Germany, or upon the Tyne in England, would have a thousand years of history known to all the world; while here, less than three-quarters of a century antedates its beginning. In 1832, James S. Porter made the first fire brick here to supply the iron mills and foundries of Pittsburg. From this small beginning the clay business has grown to its present proportions and Hancock county is the chief seat of that industry which now, in the State, numbers 14 establishments with an invested capital of $1,610,266.00; the employees number 1,269, receiving wages amounting to $500,444.00; with miscellaneous expenses of $114,834.00; cost of materials $219,134.00; and a finished product valued at $1,104,883.00.

The whole county is underlaid with beds of bituminous coal, having a thickness of from three to six feet and in many localities, indeed on almost every farm may be seen the croppings from the hills. Clay and coal are

thus brought together—the former for the making of the products and the latter for burning them when placed in kilns.

Iron ore exists in Hancock and the first iron furnace west of the Allegheny mountains was erected in 1794 on King's creek in Butler district in this county. Some of the cannon balls used by Commodore Perry to batter down the British fleet on Lake Erie were made here and conveyed on pack horses through the wilderness to Presque Isle (now Erie) on the Lake shore.

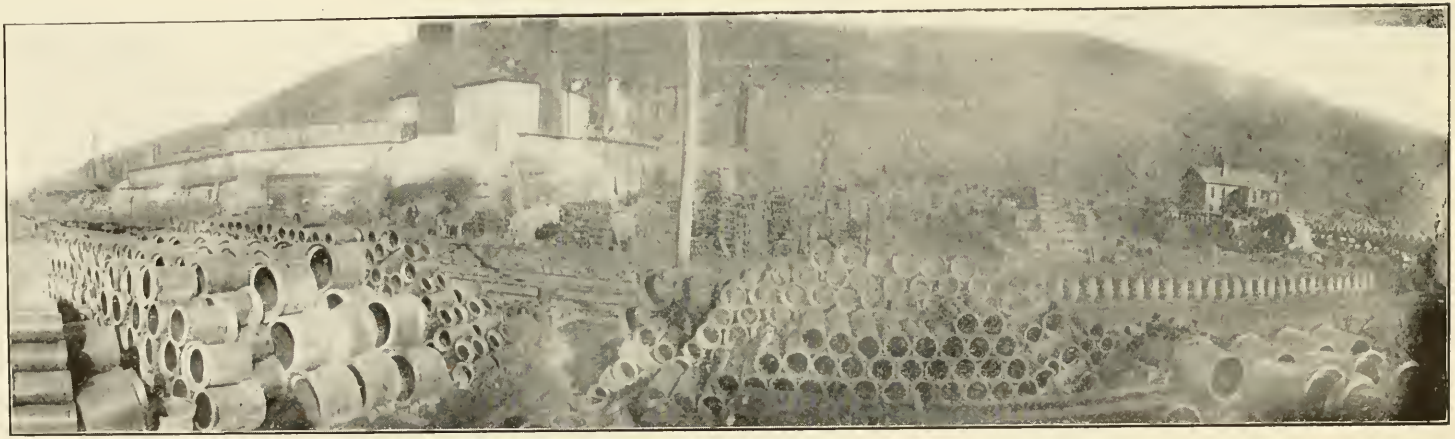
It was shown by the census of 1900 that there were 33 manufacturing establishments of various kinds in Hancock county, having an invested capital of $1,035,348.00; with 27 officials and clerks, whose salaries amounted to $32,058.00; and 697 wage earners receiving $271,709.00; miscellaneous expenses of $56,814.00; cost of material used, $150,293.00; fuel and rent, $82,614.00; and finished products valued at $659,133.00.

The county has excellent shipping facilities both by rail and river. Within it on the Pennsylvania Railroad are .58 miles of main line; .58 of second main line, and 1.45 miles of sidings, valued, with rolling stock, at $17,385.50. On the Cumberland Branch are 22.15 miles of main line and 7.25 miles of sidings valued at $288,723.00. A total trackage of 32.01 miles, the whole valued at $306,108.50.

There are in the county a total of 427 farms; of this number, two contain less than 3 acres; 18 have more than 3 and less than 10 acres; 23 have 10 and less than 20 acres; 15 have more than 20 and less than 50 acres; 98 more than 50 and less than 100 acres; 159 more than 100 and less than 175 acres; 53 more than 175 and less than 260 acres; 21 more than 260 and less than 500 acres; and 2 more than 500 acres.

In 1902, Hancock county had 1,546 acres sown to wheat which produced 24,102 bushels; 2,162 acres sown to oats, yielding 48,028 bushels; 1,311 acres in corn, yielding 11,200 bushels; 6 acres in buckwheat, producing 61 bushels; 113 acres in Irish potatoes, producing 3,985 bushels; 1,170 acres in hay producing 1,533 tons; the total value of all agricultural products being $92,159.30.

At the same time the county had 69,846 apple trees producing 70,146 bushels; 12,006 pear trees producing 3,000 bushels; 27,676 peach trees yielding 15,000 bushels; 8,176 cherry trees, yielding 1,267 bushels; and 6,000 plum trees yielding 1,500 bushels. The value of small fruits raised was $5,999.90. In the north and west Hancock county leads all others, both in number and size of its orchards, as well as in the aggregate output. Here we find orchards ranging from a few hundred trees to the unusual



CLIFTON SEWER PIPE WORKS—New Cumberland, Hancock County.

number of 18,000, under a single management. Several orchards contain upwards of 4,000 trees, while the second largest contains not far from 2,000 bearing trees. As early as 1896 the crop of this, now famous region, reached the enormous number of 100,000 barrels, 300,000 bushels. This crop was borne by a land area not exceeding 2,000 acres; the value of the crop for that year alone was not far from $250,000, most of which was divided among about twenty men. The one station of New Cumberland handled during that season 70,000 barrels, in round numbers. The soil, climate and skill of the growers all seem to be the best possible for the development of a commercial apple industry.

In 1902, there were in Hancock county 1,215 horses, 2,816 cattle, 6,145 sheep, and 1,156 swine; the total value of live stock being $130,543.00.

In 1900 Hancock county reported 19,423 chickens, 670 turkeys, 244 geese; 373 ducks; value of all poultry June 1, 1900, $7,223.00; value of poultry raised the preceding year, $11,890.00; and a total of 81,710 dozens of eggs.

Some counties boast of their national banks but the people of Hancock county are proud of their clay banks and their agricultural and horticultural lands. Investors and homeseekers may find here that which they desire.

TAYLOR COUNTY.

Taylor county, formed in 1844 from parts of Harrison, Barbour and Marion, has an area of 150 square miles and a population of more than 15,000. Grafton, its seat of justice, and one of the busiest towns in the State, is situated on Tygart's Valley river, where the Parkersburg Branch connects with the main line of the Baltimore & Ohio Railroad. It is 99 miles from Wheeling, 104 from Parkersburg, and 280 from Baltimore. Here are located the shops and round house of the Baltimore & Ohio Railroad. On that road there are within the county, 17.69 miles of main line; 15.99 miles of second main line; and 15.70 miles of sidings valued at $460,589.01. On the Parkersburg Branch are 14.58 miles of main line, 1.30 miles of second main line, and 10.48 miles of sidings, valued at $240,838.57. On the Grafton and Belington Railroad are seven miles of main line and 1.70 miles of sidings valued at $67,390.78. Then there are, in addition, $7,761.43 worth of lands and buildings belonging to the West Virginia Central &

Pittsburg Railroad. Thus the county has a total trackage of 66.65 miles, valued at $776,573.79.

Taylor county has an efficient public school system. The enumeration of school youth is 2,311; of this number, 1,954 are enrolled in the 69 schools in which 70 teachers are employed. During the last year $23,278.80 were expended for school purposes.

The surface of the county is hilly but the land is fertile and nearly all of it is arable. Almost the entire county is underlaid with coal seams of the lower measures, the two workable beds being from three to six feet in thickness. No better gas and coking coal is found in the State. The county though small is favored with much natural wealth.

There are in the county 1,120 farms of which 8 contain less than 3 acres; 69 have 3 and less than 10 acres; 91 have 10 and less than 20 acres; 286 have 20 and less than 50 acres; 307 have 50 and less than 100 acres; 223 have 100 and less than 175 acres; 85 have 175 and less than 260 acres; 38 have 260 and less than 500 acres; 10 have 500 and less than 1,000 acres; and 3 contain 1,000 or more acres.

For the year 1902, Taylor county had 1,839 acres in wheat, producing 24,242 bushels; 1,133 acres in oats, producing 19,299 bushels; 2,659 acres in corn, producing 90,570 bushels; 163 acres in buckwheat producing 4,071 bushels; 150 acres in Irish potatoes, producing 22,229 bushels; 5,617 acres in hay producing 6,322 tons. The total value of all these products was estimated at $157,865.20.

The same year Taylor county produced 43,290 bushels of apples, 90 bushels of pears, 6,163 bushels of peaches, 2,010 bushels of cherries, and 625 bushels of plums, and small fruits to the value of $2,126. Total value of all fruit, $39,020.40.

In the year 1902, Taylor county had 2,865 horses; 5,186 cattle; 4,179 sheep, from which were shorn 36,950 pounds of wool; and 1,022 swine. Total value of live stock, $236,426.00.

On June 1, 1900, there were in the county 29,660 chickens, 1,055 turkeys, 571 geese, and 729 ducks, all valued at $11,241.00. The preceding year poultry to the value of $24,269.00 was raised, and 165,660 dozens of eggs were produced. There were also within the county 926 swarms of bees valued at $3,721.00; these yielded 11,540 pounds of honey and 100 pounds of wax. The value of all dairy products for the last named year was $83,888.00.

There is health, wealth, and every convenience for the people of Taylor county.

MARION COUNTY—FAIRMONT.

Marion county, formed in 1842 from parts of Monongalia and Harrison, has an area of 335 square miles, and in 1900 had a population of 32,430, which because of a rapid increase now numbers probably 36,000. It lies in the Upper Monongahela Valley and is separated from Pennsylvania by the county of Monongalia. Much of its surface is smooth and rolling, with a fertile soil, well cultivated farms, extensive grazing and wide fruit culture.

The county is everywhere underlaid with vast beds of the best bituminous gas and coking coal, fire clay, good potter's clay, sand for glass making, lime stone for building and agricultural purposes, and sand stone for building and bridge structures, in great abundance and excellent quality.

To these elements of natural wealth are to be added oil and natural gas in great quantities. The Mannington Oil and Gas Field, one of the most extensive ever found in the State was discovered in 1891; this gave an impetus to further tests and from that time onward West Virginia's production was upward with marvelous strides until it surpassed that of Pennsylvania, and later nearly equalled the combined production of that State, New York and the *White sand* district of Ohio. The field continues to be highly productive, and along the streams and over the hills of Western Marion are now laid the pipe lines and gas mains through which are conveyed the oil and gas, therefrom, the former to refineries and the latter to furnish light and heat in the towns of other States.

The splendid shipping facilities, the easy access to market make the vast coal fields of the county to assume a great importance. The entire county is underlaid with the Pittsburg and other valuable seams. (See pp. 191, 224.) On every hand there is a busy scene of mining industry and enterprise. From the last report of the Chief Mine Inspector of the State, it is learned that in 1903 there were 21 mining operations in the county; that the output for the year was 3,172,194 tons, an increase of 497,641 tons over the preceding year. That of this 38,757 tons were used at the mines; that 21,196 tons were furnished to local trade and tenants; that 393,243 tons were used in coke ovens; and 2,761,133 tons were sent to market. In this production 373 acres was excavated; 13 of the 21 mining operations used mining machines which were operated by 788 men and boys, with a production of 1,295,410 tons, the remainder of the whole production—1,876,784 tons—being pick-mined. In the same year there were 10 coke plants with 565 ovens, employing 216 men, and consuming 393,243 tons of coal and producing 3,172,194 tons of coke.

The county has excellent transportation facilities both by rail and river. Within it on the Baltimore & Ohio Railroad are 42.18 miles of main line; 1.40 miles of second main line, and 20.54 miles of sidings valued at $628,717.30. On the Fairmont, Morgantown & Pittsburg Railroad are 8.29 miles of main line and 3.38 miles of sidings valued at $80,717.77. On the Monongahela River Railroad are 12.67 miles of main line, and 16.45 miles of sidings, valued at $201,946.25. On the Fairmont, Shinnston & Clarksburg Railway are 1.60 miles of main line and 1.30 miles of sidings, valued at $11,400.00. Thus the county has a total trackage of 107.81 miles, the whole valued at $922,781.32. In addition to this there are in the county 7.71 miles of the Fairmont and Clarksburg Electric Railroad valued at $97,204.00. Steamers in the past have ascended the Monongahela to Fairmont and when the system of locks and dams, now being constructed on that river by the National Government, is completed. Fairmont will stand at the head of navigation and the county will have slack water communication to the Ohio at Pittsburg.

The manufacturing interests of the county are extensive. By the census of 1900, there were 162 manufacturing establishments having an invested capital of $1,520,351.00; an average number of wage earners of 890, receiving $421,918.00 wages; miscellaneous expenses of $79,259.00; for rent and fuel $26,689.00; cost of raw material $888,778.00; and producing a finished product valued at $1,787,461.00. Among other enterprises established at Fairmont since that date may be mentioned the Atha Beach Manufacturing Company, with a capital of $12,000.00; the Clarksburg Fuel Company, capital $3,000,000.00; Cook Coal & Coke Company, capital, $150,000.00; the Crown Windsor Glass Company, capital $30,000.00; the Dickerson Building Supply Company, capital, $40,000.00; the Fairmont & Clarksburg Brokerage Company, capital, $5,000.00; the Fairmont Picture Frame Company, capital, $5,000.00; the Fairmont & Suburban Railway Company, capital, $200,000.00; the Fairmont Wall Plaster Company, capital, $9,000.00; the Helmick Foundry-machine Company, capital $11,000.00; Jones Undertaking Company, capital $5,000.00; the Nicholson Oil & Gas Company, capital $10,000.00; the Reed Plumbing Company, capital, $1,500.00; and the Wagner-Palmos Manufacturing Company, capital $70,000.00. Some of the other new manufacturing enterprises in the county, outside of Fairmont, are the Marion Coal & Coke Company at Everson, with a capital of $100,000.00; the Mannington Coal Company, capital $38,000.00; the Manning Coal Operative Window Glass Company, capital, $22,000.00; the Mannington Glass Works Company, capital,

$50,000.00; and the Charles Philips Tool Company, at Mannington, capital, $20,000.00.

An extensive banking business is transacted in the county. The banking houses are the Bank of Farmington, at Farmington; the Exchange Bank, at Mannington; the Bank of Mannington; the Bank of Fairmont; the Peoples Bank of Fairmont; and the Home Savings Bank, at Fairmont. The business transacted by these institutions annually runs into the millions.

The Agricultural, Live Stock, and Horticultural interests are varied and extensive. There are 2,521 farms in the county, 38 of which contain less than 3 acres; 183, 3 and less than 10 acres; 242, 10 and less than 20 acres; 674, 20 and less than 50 acres; 702, have 50 and less than 100 acres; 498, have 100 and less than 175 acres; 130 have 175 and less than 260 acres; 53 have 260 and less than 500 acres; 6 between 500 and 1,000 acres; and 3 have 1,000 or more.

In the year 1902, there were 3,071 acres sown in wheat, producing 36,291 bushels valued at $29,032.80; oats, 1,725 acres, producing 6,964 bushels, valued at $2,786.80; corn, 4,080 acres, producing 150,927 bushels, valued at $90,556.20; buckwheat 185 acres, producing 3,633 bushels, valued at $1,817.00; Irish potatoes, 244 acres, producing 22,065 bushels, valued at $11,031.50; hay, 7,404 acres, producing 8,757 tons valued at $87,550.00. The total value of these products for the year was $222,774.30.

The same year, in Marion county, 51,181 apple trees produced 77,709 bushels, worth $46,625.40; 3,651 pear trees produced 2,792 bushels, worth $223,60; 14,755 peach trees produced 7,786 bushels, worth $6,238.80; 3,823 cherry trees produced 2,223 bushels, worth $4,446.00; 4,382 plum trees, produced 955 bushels, worth $1,910.00. The total value of fruits for the year was $61,443.80.

At the same time the live stock of the county was shown to be: horses, 5,853, worth $234.120.00; cattle, 13,854, worth $277,080.00; sheep, 10,255, worth $20,510.00; hogs, 6,482, worth $19,446.00. The total value of all live stock was $562,993.00.

Last year, the assessed value of all real estate in the county was $6,330,156.00; that of personal property, $3,604,427.00; these values with the license and polls aggregated $10,344,573.

The county has an excellent free school system, there being 152 schools, and an enumeration of 9,173 school youth, and 7,298 pupils enrolled. The District Building Fund amounts to $27,958.69; and the Teachers' District Fund to $37,151.33; and both exclusive of the State Fund to $65,109.99.

A branch of the State Normal School is located at Fairmont. (See p. 115.)

There are a number of flourishing villages and towns in the county: Mannington, in the western part of the county on the main line of the B. & O. R. R. is in the center of the great oil and gas fields. It is growing rapidly and its banks and business enterprises are in a most prosperous condition. Its public school building is not surpassed in adaptation and architectural beauty by that of any other town or city in the State. Amid all the wealth, commercial activity, and industrial enterprise.

Fairmont, the seat of justice, stands upon the hills overlooking, for miles, the valley of the Monongahela. In 1890, its population was 1,023: in 1900 it had grown to nearly 6,000; now it is believed to be more than 10,000. It is 26 miles from Morgantown, 32 from Clarksburg, 78 from Wheeling, 128 from Pittsburg, and 302 from Baltimore. Its facilities for manufacturing and shipping are such as to render it one of the best towns of the State. It is situated on the banks of the Monongahela river in the midst of a landscape of surpassing beauty and loveliness. The population is intelligent and moral and disposed to encourage and aid any effort to improve the city. Every railroad that reaches Fairmont is a coal carrier and such will be the Monongahela river in a little time. The town now has, say 10,000 inhabitants and it has room for 30,000 more. These are invited to come and find a home and invest their capital, their energy and their labor; to them is given the assurance that they will be welcome and provided with opportunities as soon as they arrive. They are further assured that no other town in West Virginia has, thus far, made more rapid progress in both educational and material matters than has Fairmont. It has the modern conveniences of natural gas, water works, electric lights and street railway, and local and long distance telephones, and is noted for its healthful conditions, physical, social, and moral. There are churches of the following denominations in the town: Presbyterian, Methodist Episcopal, Methodist Protestant, Baptist, Episcopal, Lutheran, Christian, and Roman Catholic.

Let it be remembered that Fairmont is "a good town" in which to live and to do business, from every standpoint of reasoning. As a manufacturing center, the facilities afforded by the splendid network of railroads, and slack-water on the Monongahela is a sufficient demonstration of its desirability. The success of establishments already here is leading to the enlargement and expansion of industrial enterprises and this will continue.

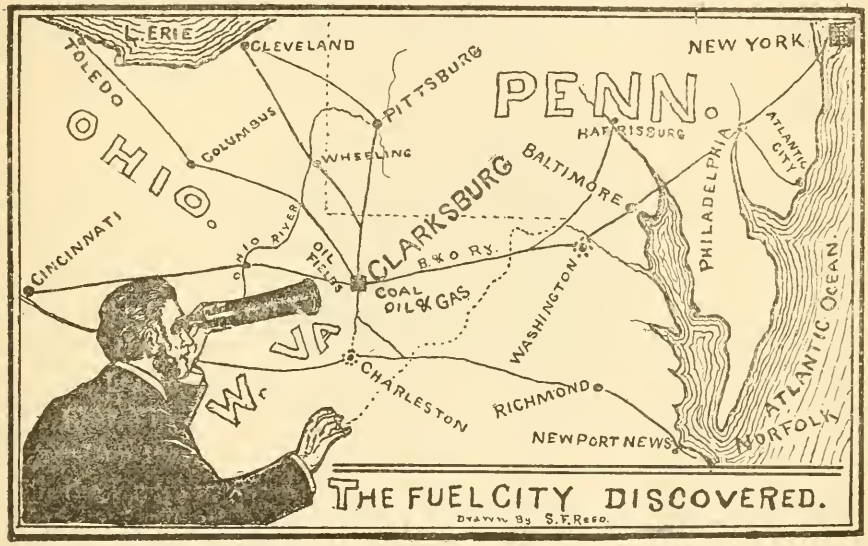
The West Virginia Miners Hospital No. 3, is located at Fairmont. (See pp. 65-66.)

HARRISON COUNTY'S METROPOLIS—CLARKSBURG.

(WRITTEN BY HON. STEWART F. REED, FOR THE BOARD OF TRADE.)

Clarksburg, is the most important city in the great coal, oil and natural gas belt of West Virginia. It is aptly designated, the manufacturing and industrial mecca of the State. The compilers of the last City Directory report a population of 14,625, which does not include several thriving suburban villages, where reside hundreds of men connected with the mining, manufacturing and oil industries.

The town is the County seat of Harrison county, agriculturally among the richest of the State's fifty-five counties. The surrounding country is a



picturesque, undulating blue-grass region, noted for its fine farms, and its thoroughbred cattle and horses, while beneath the surface are vast deposits of the finest coal in the world, together with the reservoirs of oil and gas, the extent of which no one can reckon. With few exceptions all the farmers in the county are now receiving annual oil rentals or royalties.

THE FUEL CITY OF THE FUEL STATE.

Manufacturers are just commencing to appreciate the great advantages of Clarksburg, where natural gas is furnished at from four to six cents per thousand cubic feet, and where there is an inexhaustible supply of coal that can be obtained at most reasonable prices.

During the last five years a number of enterprising concerns have located there and are now prospering under these advantageous conditions. Four large glass-plants are in operation, and an extensive art glass factory has just secured a location.

SOME GIGANTIC CONCERNS.

The Grasselli Chemical Company, one of the wealthiest firms in America, backed by a capital of Ten Millions of Dollars, have completed the first installment of their immense plant, which employs from the start, over three hundred men. Work will proceed as rapidly as possible on their additional buildings, which, when fully completed, will employ from 1000 to 1200 men.

The National Carbon Company have begun work on their factory, which employs about three hundred workmen, and will be the largest plant of its kind in the United States.

LOCATED AND DOING WELL.

There are now in operation, wood-working plants, chair factory, art pottery, machine-shops, foundries, bottling works, brewery, plaster factory, tin plate mill, cigar factories, and many smaller industrial concerns.

The City has large wholesale and jobbing houses, and an immense grain elevator, with a capacity of 80,000 bushels. In five years, the increase in wealth and population has been three fold. The present annual receipts for freight and passenger traffic at Clarksburg are larger than at any other point between Baltimore and Cincinnati.

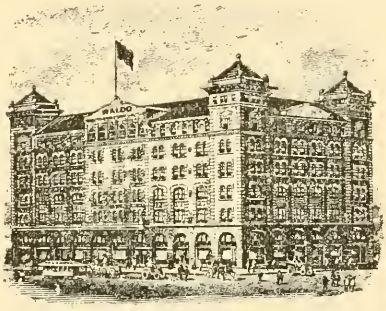
A DESIRABLE PLACE TO LIVE.

The climate is healthful, and the customs of the people in keeping with the times. There are many modern homes and desirable residence streets. The educational facilities are attractive, and the churches sufficient in number, and sect, to accommodate all.

The City has well equipped water-works, efficient sewerage, paved streets, electric lights, street cars and trolley lines to the country, modern stores, splendid hospitals, up-to-date theaters, beautiful natural parks, a College with musical and art courses, post-office in government building, city and rural free delivery of mails, city fire department, two modern telephone systems, two express companies, two daily, three weekly, and two monthly periodicals, seven banks, an artificial gas plant, and natural gas supply system.

HOTELS AND RAILROAD FACILITIES.

The City boasts of the finest hotels in the State. One of these is not surpassed in its appointments and service, by the Waldorf of New York, or Willard's of Washington. The traveling public maintain that, with, twenty-six passenger trains daily, Clarksburg has the best train service in the State. In fact, so centrally and advantageously is the city located, one can visit Pittsburg and return the same day, while other trains make it possible for the business man to leave Clarksburg after ten p. m., and on the morning following, breakfast at Cincinnati, Washington, Baltimore or Philadelphia. Through trains without change run east and west to New York and St. Louis. Railroads radiate from the City in five directions, and work is now progressing on connections that will give a direct outlet toward Newport News, Norfolk, and the South.



A CLARKSBURG HOTEL.

Two hours or less by rail takes one to Deer Park or Mountain Lake, the famous health resorts of the Alleghenies, and a branch railway extends southward from the City to the timber region and the celebrated Webster Springs, where nature's own remedies have baffled disease and given the blessings of health to thousands of the afflicted.

Clarksburg being the commercial metropolis of that region, on the main line of the B. & O. Ry., is destined also, to be the chief railroad center between Baltimore and Cincinnati, and the gate-way to the southern seaboard.

RESOURCES AND ADVANTAGES.

Clarksburg is the present outlet for thousands of acres of forests of oak, poplar, birch, beech, maple, sugar, chestnut, hickory, and other woods indigenous to that latitude. Limestone, brick, shale, glass, sand, potter's

clay, &c., are found in abundance and of superior quality. The lumber passing the yards of Clarksburg has averaged a thousand cars per month, all of which could be manufactured to advantage in that progressive "Fuel City of the Fuel State." The freight rate from the timber region is low and factories have practically the same advantages as though situated at the source of supply.

The thousands of cars which carry coal from Clarksburg to the great eastern cities and northern lake ports, have in the past, been hauled back empty. Arrangements could be made to return these cars laden with

A BUSINESS BLOCK IN CLARKSBURG.

ore, or other raw material needed by manufacturers at a very low freight rate.

ROOM FOR MORE FACTORIES.

Wood-working plants will find exceptional opportunities at Clarksburg. There is certainly a splendid opening for the following:—Sash and door factories; planing mills; box factories; handle factories; wooden novelties; furniture factories of every description; coffin factory, (there are millions of feet of chestnut very cheap); mantels and interior finish; wagon and buggy factories. A factory devoted to the manufacture of mine cars, could sell the output of a large plant in this mining district alone.

INDUCEMENTS OFFERED.

Manufacturing establishments can obtain ABSOLUTELY FREE, a nice plot of ground, extending to the river, with railroad facilities, and contiguous to the street car lines. The Baltimore & Ohio Railroad Company supplements this generous offer, by adding other attractive inducements which should not be overlooked by those interested. The seven banks of the City are capitalized at amounts ranging from $100,000.00 to $250,000.00. All these financial institutions are kindly disposed toward industrial enterprises and are always accommodating to their customers. No legitimate enterprise has ever suffered for want of banking accommodations at Clarksburg.

Defective real estate titles are practically unknown. Legitimate investments are amply protected by wholesome laws and proper safeguards. Taxes are reasonable and the municipal government is so managed that the city's bonds command a high premium whenever offered to the public. For further information, address the Secretary of the Board of Trade, Clarksburg, W. Va.

MONONGALIA COUNTY.

Monongalia county, formed in 1776 from the District of West Augusta has an area of 360 square miles and had, in 1900, a population of 10,049, now believed to have grown to nearly 15,000. It joins Pennsylvania, the famous old Mason and Dixon's Line being for several miles its northern boundary. The surface is varied, undulating, broken with high hills in the eastern part. On these elevations are broad tops of rich lands; fertile valleys stretch away in every direction and much of the county is in a high state of cultivation. The soil is a loam varying from sandy to clayey, with some calcareous lands. All are naturally productive and well suited for grass.

By the last census there were 2,259 farms in the county. Of these, 28 contained less than 3 acres; 130 contained 3 and less than 10 acres; 196 contained 10 and less than 20 acres; 548 contained 20 and less than 50 acres; 609 contained 50 and less than 100 acres; 475 contained 100 and less than 175 acres; 159 contained 175 and less than 260 acres; 93 contained 260 and less than 500 acres; 18 contained 500 and less than 1,000 acres; and 4 contained 1,000 acres or more.

In 1902, in Monongalia county, there were 4,089 acres sown to wheat, which produced 35,015 bushels, worth $28,012.00; there were 2,155 acres in oats, producing 25,076 bushels, worth $10,030.40; there were 4,705 acres in corn, producing 186,301 bushels, worth $111,780.60; there were 140 acres in buckwheat, producing 2,391 bushels, worth $1,195.50; there were 92 acres in Irish potatoes, producing 19,637 bushels, worth $9,818.50; and 13,450 acres in hay, producing 12,015 tons, worth $120,151.00. The total value of these products was $280,987.00. In addition to this, 15 acres were planted in sorghum cane from the product of which 1,097 gallons of syrup were made.

The same year 63,453 apple trees yielded 86,691 bushels; 2,880 pear trees yielded 772 bushels; 23,383 peach trees yielded 11,837 bushels; 4,205 cherry trees yielded 761 bushels; 6,819 plum trees yielded 1,417 bushels. There were 75 acres planted in small fruits, the product of which was valued at $7,163.00. The total value of fruit for the year was estimated at $65,457.80.

The county ranks high in the production of live stock. In the last mentioned year there were of horses and mules 3,934 valued at $157,360.00; cattle, 10,451 valued at 209,020.00; of sheep, 9,345, valued at $18,690.00; of swine, 2,782 valued at 8,346.00; of poultry, 37,934, valued at $11,383.00; the total value of all live stock was 404,799.00. The preceding year, poultry to the value of $52,804.00 was raised, and 334,730 dozens of eggs produced.

The county is rich in mineral resources, the whole surface being underlaid with valuable beds of coal. In no other county in West Virginia has the State Geological and Economic Survey given fuller details than to Monongalia coal fields, clays, and building stones. (See pp. 191 and 224.) Mining on an extensive scale is but beginning, yet by the report of the Chief Mine Inspector it is shown that in the year 1902, there were mined 150,371 tons of coal, an increase of 54,782 tons over the production of the preceding year. Of this amount, 182 tons were thus used in operating the mines; 419 tons furnished the local trade and tenants; 34,794 tons used in coke ovens; and 94,976 tons sent to market. 13.69 acres were worked out and all coal was pick mined. In the same year 19,948 tons of coke were made.

The earliest industry carried on in the county was the manufacture of iron. The Decker Iron Works, also known as the "Old Rock Forge" were standing in 1798. In 1800, a road was constructed down Decker's creek from Samuel Hannoway's "iron works". The Cheat Iron Works

were owned by Samuel Jackson in 1804. The first rolling mill west of the Allegheny Mountains, of which there is any exact record, was in operation near Morgantown as early as 1812. (See Pittsburg Almanac for 1813.) Cut nails were among the products of this pioneer mill, a manufacture which afterwards became so important that Wheeling, its center, was long known as the "Nail City". (For present conditions, see p. 206.) No furnaces are in operation to-day but the ore still remains. Stowed away among the hills of Monongalia county, a good building stone is found, and there are blue and gray sand stones which are also valuable for building purposes. That used in the construction of the suspension bridge across the Monongahela at Morgantown erected in 1854—fifty-four years ago—shows no signs of disintegration or effects of erosion. There is also found an abundance of glass sand in the eastern part of the county. Several kinds of clay are present which are suitable for the manufacture of paving and fire brick, sewer pipe, tiling, terra cotta work, etc. Most of these are found on the east side of the Monongahela.

The manufacturing interests of the county are numerous and varied. By the census of 1900 it was shown that there were 67 manufacturing establishments in the county having an invested capital of $529,692.00, paying officials and clerks salaries aggregating $14,546.00, with an average of 455 wage earners whose earnings amounted to $182,311.00; miscellaneous expenses to $19,106.00; cost of material, $279,983.00; and the finished product valued at $644,737.00. Among recently founded establishments, are the Empire Brick Company, with an invested capital of $10,000.00; the Caszar Cut Glass Company, capital, $5,000.00; and the Morgantown Bridge and Improvement Company, capital, $100,000.00.

The county has rare transportation facilities both by rail and river. Within it, on the Fairmont, Morgantown, and Pittsburg Railroad, are 27.03 miles of main line and 3.69 miles of sidings, valued at $248,525.02. On the Morgantown and Kingwood Railroad are 11.42 miles of main line; 2.50 miles of branch line, and .75 miles of sidings, valued at $48,045.00. Thus the county has a total trackage of 45.39 miles, valued at $296,570.02. In addition to this the splendid system of locks and dams constructed by the National Government secures to the county slack-water navigation to the Ohio river at Pittsburg.

The county has an excellent public school system. There are 118 schools in which 148 teachers are employed; 5,909 school youth are enu-

merated and 5,080 pupils are enrolled in the schools. The total expenditure for school purposes last year was $42,633.27.

Morgantown, the seat of the University (See p. 108), is the capital of Monongalia county and is a beautiful town of nine thousand inhabitants on the Monongahela river and the Baltimore & Ohio Railroad, 103 miles east of Wheeling, and at the same distance south of Pittsburg. It has the modern conveniences of natural gas, water works, electric lights and street railways, and local and long distance telephones, and is noted for its healthful conditions, physical, social and moral. There are churches of the following denominations in the town: Presbyterian, Methodist Episcopal, Methodist Protestant, Baptist, Protestant Episcopal, Lutheran, Christian and Roman Catholic. There are no saloons in Morgantown.

The banking business of a county is usually an index to the volume of business prosperity and enterprise therein. This gives to Monongalia a most creditable showing. In Morgantown are four banking institutions: Bank of the Monongahela Valley, which began business in 1888; capital stock paid in, $110,000.00; surplus and undivided profits, $69,656.11; deposits, $922,376.74. The Farmers and Merchants Bank began business in 1895; capital stock paid in, $25,000.00; surplus and undivided profits, $16,695.59; deposits, $185,827.34. The Citizens' National Bank began business in 1901; capital stock paid in, $50,000.00; surplus and undivided profits, $22,001.04; deposits, $196,753.63. The Second National Bank began business in 1880; capital stock paid in, $80,000.00; surplus and undivided profits, $25,699.10; deposits, $273,748.52. At Blacksville, the Dunkard Valley Bank, began business in 1902; capital stock paid in, $11,870.00; undivided profits, $967.63; deposits, $32,852.08.

The manufacturer, merchant, business man of great affairs, laboring man, homeseeker—all will find desired opportunities in Monongalia county.

JEFFERSON COUNTY.

Jefferson county, the most eastern in the State and embracing the eastern extremity of the Eastern Pan-Handle, was formed from part of Berkeley in 1801. Its area is 300 square miles. Population, in 1900, was 15,935, now more than 16,000. The first settlement in WestVirginia was made in this county.

Jefferson lies in the lower part of the Shenandoah Valley with the Blue Ridge as its eastern boundary while the Potomac washes its northern

boundary, and the beautiful Shenandoah finds its way to the Potomac through its eastern portion. The surface is rolling and undulating; the soil is mainly calcareous loams and clays. The principal industries are farming, fruit growing, stock raising, and manufacturing.

The proximity to market added to the productiveness of the soil, makes Jefferson doubly valuable as a farming county. Farm and garden products of all kinds from almost any part of the county may be put into the markets of Washington City and Baltimore in a few hours. By the census of 1900 there were 785 farms in the county of which number, 11 had less than 3 acres; 65 had 3 and less than 10 acres; 30 had 10 and less than 20 acres; 77 had 20 and less than 50 acres; 19 had 50 and less than 100 acres; 223 had 100 and less than 175 acres; 266 had 175 and less than 260 acres; 108 had 260 and less than 500 acres; 12 had 500 and less than 1,000 acres; and 2 had 1,000 acres.

All the cereals grow luxuriantly. Two years ago 27,362 acres of wheat produced 438,861 bushels; 102 acres of oats produced 2,904 bushels; 16,367 acres of corn produced 1,204,449 bushels; 167 acres of Irish potatoes produced 16,126 bushels; 7,936 acres of hay produced 2,904 tons. The total value of these crops was $1,148,684.30.

Fruit culture offers vast possibilities and this industry is but now being developed. In 1902, 77,670 apple trees produced 88,668 bushels; 10,580 pear trees produced 3,151 bushels; 26,894 peach trees produced 8,576 bushels; 1,194 cherry trees produced 1,411 bushels; 3,298 plum trees produced 786 bushels. The total value of these fruits was estimated at $66,616.40. 25 acres planted in small fruits yielded a production valued at $1,409.00.

In 1902 there were in Jefferson county, 3,689 horses, 6,180 cattle, 7,847 sheep, 9,968 swine—total value of all, $316,754.00. The poultry numbered 46,757, and was valued at $14,026.00. The total value of all poultry raised the preceding year was $34,636.00; and 355,950 dozens of eggs were produced.

By the census of 1900 the county had 94 manufacturing establishments having an invested capital of $1,156,795.00; 25 salaried officers and clerks receiving $24,280.00; 503 wage earners receiving $149,362.00; miscellaneous expenses of $46,100.00; cost of material, $486,828.00; and a finished product worth $934,493.00.

The county has valuable mineral resources. Iron ores are found in several localities. These consist of the cellular, honey-combed, and pipe varieties of the brown hematite, and have been used for producing iron for

more than a hundred years. Limestone is found in abundance in any part of the county east of the Shenandoah river and a hydraulic variety from which cement is made abounds. A fine variety for building purposes is also found. The last mentioned possesses a good color and is susceptible of a high polish. From this all the stone for the building of the British Legation and other handsome structures in the National Capital was quarried and taken down the canal on flat boats, many years ago. A good quarry of grey marble may be obtained at Shepherdstown. Mineral springs abound. (See p. 261.)

The transportation facilities to and from the county are excellent. On the Baltimore & Ohio Railroad are 12.83 of main line; 18.79 miles of second main line, and 10.06 miles of sidings valued at $297,369.99. On the Winchester & Potomac Railroad are 20.16 miles of main line, 5.09 miles of sidings valued at $156,080.65. On the Norfolk & Western Railroad, 18.46 miles of main line; .44 miles of branch line, and 3.44 miles of sidings, valued at $211,761.00. Thus the county has 89.27 miles of trackage valued at $665,211.64.

The county has excellent educational facilities. There are 50 public schools in which 82 teachers are employed; there is an enumeration of school youth of 5,090, and an enrollment of 2,966 pupils. $33,919.65 were expended for the support of these schools last year. A branch of the State Normal School is at Shepherdstown, and Powhatan College and Stephenson Female Seminary are located at Charles Town. (See pp. 129-130.)

Charles Town, the county seat and the scene of the trial and execution of John Brown, and historic Harper's Ferry are the principal towns. At the latter is located Storer College for the education of colored youth. (See p. 121.)

BERKELEY COUNTY.

Berkeley county was created in 1772 from parts of Frederick, and the commissions of its first officials issued by Lord Dunmore, the last royal governor of Virginia. It is the central county of the Eastern Pan-Handle. The Potomac washes its northern border; the western part is mountainous and broken, but the eastern part is smooth and undulating. The soils are loams and clays. It is the center of one of the best agricultural sections of the State.

In the year 1900 there were 1,272 farms in the county of which 24 contained less than 3 acres; 72 had 3 and less than 10 acres; 67 had 10 and

less than 20 acres; 145 had 20 and less than 50 acres; 190 had 50 and less than 100 acres; 385 had 100 and less than 175 acres; 248 had 175 and less than 260 acres; 134 had 260 and less than 500 acres; and 7 had 500 and less than 1,000 acres.

The cereals all yield well and farming is the chief occupation of the people. In 1902 there were sown in wheat 15,789 acres yielding 236,125 bushels; in oats, 269 acres yielding 3,764 bushels; in corn, 10,255 acres, yielding 360,248 bushels; in Irish potatoes, 110 acres yielding 7,651 bushels; in hay, 5,721 acres, yielding 5,406 tons. The total value of all agricultural products for the year was $465,084.40.

The county is now proven to be especially adapted to fruit culture. Two years since 114,802 apple trees produced 105,327 bushels; 8,777 pear trees produced 3,591 bushels; 126,422 peach trees produced 86,611 bushels; 1,423 cherry trees, produced 1,209 bushels; 15,441 plum trees produced 7,134 bushels; 101 acres of small fruits yielded a product worth $8,324.00. The total value of all fruit for the year was $152,464.80.

The lands are especially adapted to grazing and much attention is given to this industry. In the last mentioned year there were in the county, 4,773 horses and mules; 6,898 horned cattle; 11,531 sheep; 4,853 swine; and 30,546 poultry. The value of poultry raised the preceding year was $50,228.00 and 386,180 dozens of eggs were produced. The value of all live stock in the county for the year was $409,713.00. From the sheep 11,200 fleeces, weighing 74,810 pounds were clipped and sent to market. There were 2,679 swarms of bees valued at $6,637.00; these produced 22,410 pounds of honey and 570 pounds of wax.

The county has valuable mineral resources. Brown hematite iron ore is found in several localities, specular ore exists and a good quality of pipe ore has been mined near Martinsburg. Limestone of very excellent quality is abundant throughout the county and is largely manufactured into lime. There is great abundance of building stone and semi-marble-lime-stone, easily obtained, is not excelled for this purpose in the whole valley of the Potomac.

In the year 1900, there were 150 manufacturing establishments reported in the county, having an invested capital of $1,710,138.00; an average number of 1,181 wage earners receiving $307,956.00; cost of materials, $937,887.00; and a finished product valued at $1,659,860.00. Among recently established enterprises at Martinsburg are the Bessemer Limestone Company, having a capital of $500,000.00; the Brooklyn Brass Manufac-

turing Company, capital, $50,000.00; the Hannis Distilling Company, capital, $130,000.00; the W. H. Heisten Mill Construction Company, capital, $5,000.00; the National Commercial Company, capital, $30,000.00; and the Peoples' Trust Company, capital, $150,000,00.

The county has excellent shipping facilities. Within it on the Baltimore & Ohio Railroad are 18.84 miles of main line, 18.84 miles of second main line and 24.20 miles of sidings, valued at $446,693.49. On the Cumberland Valley & Martinsburg Railroad are 24.48 miles of main line and 5.56 miles of sidings, valued at $181,646.00. Thus the county has 91.62 miles of trackage, valued at $628,339.49.

Martinsburg, the seat of justice of the county, is the metropolis of eastern West Virginia, and a flourishing commercial and industrial center. By the census of 1900 it had a population of 7,564, now increased to probably 10,000. It has distilleries, knitting factories, woodworking establishments, planing mills, grain elevators, etc. It has macadamized streets, street railway, electric light, gas, water works, and sewerage. It is 74 miles from Washington City, 100 miles from Baltimore; 280 from Wheeling and 284 from Parkersburg.

MORGAN COUNTY.

Morgan county, formed in 1820 from parts of Hampshire and Berkeley, has an area of 325 square miles. Population, in 1900, was 7,294, now increased to probably 9,000. It is the third and last in the Eastern Pan-Handle. The Potomac river is the northern boundary and the Great Cacapon flows northeastwardly through the western part of the county. In the valleys there are good farming lands, although the surface is broken, and there are numerous rocky ridges separating the streams, the soil is a rich sandy loam. There are 695 farms, of which 2 contain less than 3 acres; 16 contain 3 and less than 10 acres; 18 contain 10 and less than 20 acres; 64 contain 20 and less than 50 acres; 152 contain 50 and less than 100 acres; 232 contain 100 and less than 175 acres; 123 contain 175 and less than 260 acres; 68 contain 260 and less than 500 acres; 13 contain 500 and less than 1,000 acres; and 7 have 1,000 or more acres.

In 1902, there were in the county 3,250 acres sown in wheat, producing 21,800 bushels, valued at $17,440.00; 1,360 acres in oats, producing 28,360 bushels, valued at $11,452.00; 6,200 acres in corn, producing 150,200 bushels, worth $98,120.00; 325 acres in Irish potatoes producing 22,325

bushels, valued at $11,162.50; and 3,850 acres of meadow yielding 1,960 tons of hay valued at $19,600.00. The total value of all agricultural products was $149,774.50.

Much of the soil is well adapted to grazing and in 1902 there were in the county, 1,670 horses and mules, 4,700 cattle, 2,500 sheep, and 1,856 hogs. The total value of the live stock was estimated at $171,268.00.

In 1900, there were in the county 25,328 chickens, 531 turkeys, 160 ducks and 138 geese, the whole valued at $7,506.00 the preceding year, poultry to the value of $11,349.00 was raised and 139,620 dozens of eggs were produced. At the same time there were 627 swarms of bees, worth $1,485.00 and producing 7,480 pounds of honey and 260 pounds of wax.

The county is well adapted to the culture of all kinds of fruit but it is only in recent years that the people have engaged in this important industry. For the year 1900 the county reported 60,730 apple trees, producing 96,220 bushels; 5,291 cherry trees, producing 4,445 bushels; 79,023 peach trees, and 2,005 pear trees, the latter yielding 1,007 bushels; 2,930 plum trees, producing 683 bushels; and 18,221 grape vines, producing 73,183 pounds, valued at $2,088.00. There were also reported 1,361 barrels of cider; 55 barrels of vinegar and 35,180 pounds of evaporated fruit, Pawpaw Station on the Baltimore & Ohio Railroad is the center of the orchard industry of the county. There the Mountain Dale Orchard Company, with a capital of $20,000.00 has 150 apple trees, 600 plum trees, 9,000 pear trees, and 16,000 peach trees. The company will, this fall set 12,000 more peach trees and will then have 350 acres in fruit. At the same place the Allegheny Orchard Company has 1,000 acres in orchards, among their fruits being 7,000 plum trees, 13,000 pear trees, and 95,000 peach trees.

The fruit canning industry is an important one in the county. There are thirteen establishments and these, last year, canned and shipped 75 car loads of tomatoes; each car contained 500 cases of 2 dozen cans each, making a total of 8,000,000 cans.

In 1900, there were in the county 48 manufacturing establishments with a capital of $1,462,793.00; 209 wage earners receiving $68,911.00; and miscellaneous expenses of, $20,862.00; cost of material, $756,910.00; and a finished product, valued at $954,490.00.

The county is rich in minerals. Iron ore of fair quality is present in several localities; potter's clay has been worked at Hancock Station; and the Warm Springs mountain extending for forty miles through the county

and into Hampshire, is the largest mass of white-glass sand on the globe—sufficient to supply the world for ages to come. It is prepared and sent to market at Pittsburg, Philadelphia and many points in other States by the Berkeley Springs Sand Company, the West Virginia Sand Company, and the Hancock White Sand Company. Mineral Springs abound. (For a description of the famous Berkeley Springs see p 256.)

The county provides liberally for education. There are 41 public schools; 2,333 school youth enumerated and 1,685 enrolled.

The shipping facilities of the county are excellent. Within it on the Baltimore & Ohio Railroad are 42.51 miles of main line, 42.56 miles of second main line, and 35.68 miles of sidings, valued at $901,960.77; on the Berkeley Springs and Potomac Railroad are 5.95 miles of main line and 1.07 miles of sidings, valued at $31,089.51; on the Potomac Valley Railroad of West Virginia are .73 miles of main line and 3.53 miles of sidings, worth $35,105.00; thus the county has a total of 97.03 miles of trackage, valued at $971,155.28.

CALHOUN COUNTY.

Calhoun county, formed in 1855, from part of Gilmer; area of 280 square miles. In 1900 the population was 10,266; now it is probably 12,000. The Little Kanawha river divides the county into two unequal parts. The surface is hilly but the lands are fertile. The soils are sandy and clayey loams, being about 20 inches deep in the valleys and 10 on the hills. The chief industries are farming, grazing and timbering.

The county has 1,674 farms; of this number 18 have less than 3 acres; 62 have 3 and less than 10 acres; 98 have 10 and less than 20 acres; 387 have 20 and less than 50 acres; 591 have 50 and less than 100 acres; 356 have 100 and less than 175 acres; 89 have 175 and less than 260 acres; 60 have 260 and less than 500 acres; 16 have 500 and less than 1,000 acres; and 6 have 1,000 or more acres.

Had more attention been paid to agriculture and less to timbering, far better results might have been seen on the farms for both the hills and valleys are well adapted to all kinds of agricultural pursuits. In the year 1902, 3,781 acres sown to wheat yielded 22,173 bushels, valued at $17,978.10; in oats, 755 acres yielded 6,916 bushels, valued at $2,766.40; in corn, 7,920 acres yielded 26,590 bushels, worth $15,954.00; in buckwheat, 25 acres yielded 405 bushels, worth $202.50; in Irish potatoes, 306 acres

produced 14,764 bushels, worth $7,372.00; 5,248 acres in hay, yielded 3,489 tons worth $34,489.00; from the production of 111 acres planted in sorghum cane, 8,064 gallons of syrup were made. The total value of agricultural products was estimated at $78,762.30.

For the same year, the county reported 70,207 apple trees yielding 72,955 bushels, worth $43,773.00; 650 pear trees, yielding 322 bushels, worth $257.60; 19,042 peach trees, yielding 91,461 bushels, worth $73,168.00; 2,209 cherry trees, producing 363 bushels, worth $726.00; 2,189 plum trees, producing 464 bushels, worth $928.00; 6 acres of small fruits yielded a production worth $312.00; the total value of all fruits being $118,853.40.

The county is well adapted to stock raising. In 1902 there were in the county 2,584 horses valued at $103,360.00; 6,139 cattle valued at $124,780.00; 4,474 sheep, valued at $8,944.00; 2,821 swine valued at $8,463.00. The total value of live stock that year was $267,918.00. At the same time there were 36,885 chickens, 903 turkeys, 2,160 geese, and 1,100 ducks, the whole worth $12,008.00; and 2,045 swarms of bees, worth $8,711.00, producing 37,400 pounds of honey and 570 pounds of wax. There were, on farms, 2,973 milch cows, yielding 1,268,863 gallons of milk and 71,811 pounds of butter were made, of which 31,959 pounds were sent to market.

But it is not alone upon the agricultural and horticultural interests that the county depends for its prosperity. Not only has she rich beds of coal beneath the water levels, but now has within her borders what is among the greatest oil and gas producing fields of the State. Here are hundreds of millions of cubic feet of gas plugged in wells for future use. Fortunes have been made here and will continue to be made.

Manufacturing is in its infancy, but the largest lamp-black factory in the world is located within a few miles of Grantsville, the seat of justice. In 1900 there were 22 manufacturing establishments in the county, having an invested capital of $37,659.00; wages, $4,568.00; miscellaneous expenses, $898.00; cost of material, $37,255.00; and a finished product worth $60,264.00.

GILMER COUNTY.

Gilmer county, formed in 1845, from parts of Lewis and Kanawha, has an area of 360 square miles, and in 1900 the population was 11,762.

It lies in the upper part of the Little Kanawha Valley slightly to the northeast of the center of the State. Like those adjoining it, it is not mountainous but hilly. The bottom lands are especially fine the soil being loam with sand. Red calcareous clay with sandy loams are found upon the hills. The whole is well suited to agricultural purposes. The county lies in West Virginia's "Blue Grass Belt" and here this best of grasses springs up spontaneously and forms an excellent sod and pasture everywhere.

There are in the county 1,764 farms: Of this number 4 contain less than 3 acres; 122 contain 3 and less than 10 acres; 173 contain 10 and less than 20 acres; 316 contain 20 and less than 50 acres; 481 contain 50 and less than 100 acres; 386 contain 100 and less than 175 acres; 142 contain 175 and less than 260 acres; 100 contain 260 and less than 500 acres; 30 contain 500 and less than 1,000 acres; and 10 contain 1,000 or more acres.

It may be said that the lands of the county are fertile even to the very hill-tops. In 1902, 4,697 acres sown in wheat produced 34,428 bushels valued at $20,656.80; 469 acres in oats produced 5,702 bushels, valued at $2,280.80; 6,999 acres in corn produced 240,186 bushels, valued at $144,-111.60; 12 acres in buckwheat produced 129 bushels, valued at $64.50; 264 acres in Irish potatoes produced 17,056 bushels, valued at $8,528.00; 7,169 acres of meadow produced 5,311 tons of hay, valued at $53,110.00. The total value of all agricultural products for the year was $228,991.70.

Every variety of fruit produced in the State grows to perfection in Gilmer county. In 1902, 65,603 apple trees yielded 80,492 bushels, worth $48,255.20; 660 pear trees ielded 216 bushels, worth $172.80; 13,503 peach trees yielded 6,977 bushels, worth $5,581.00; 1,200 cherry trees yielded 216 bushels, worth $432.00; 1,032 plum trees, yielded 253 bushels, worth $506.00. Of small fruits 38 acres yielded a production worth $2,895.00. The total value of all fruits grown in the county was $54,947.00.

As soon as the forest is removed from the lands, blue grass takes its place and this affords special opportunities to stock raisers. In 1902, there were 3,381 horses and mules in the county, valued at $129,613.00; 8,039 cattle, valued at $14,505.00; 6,880 sheep, valued at $11,670; 6,230 swine, valued at $18,690.00; the total value of all live stock for the year was $260,000.00.

By the last census it was shown that there were in the county 49,583 chickens; 3,131 turkeys; 2,940 geese, and 1,529 ducks, the whole valued at

$16,430.00. The value of poultry raised the preceding year was $34,596.00; and 330,480 dozens of eggs were produced. 2,166 swarms of bees, valued at $9,641.00, produced 36,600 pounds of honey and 210 pounds of wax.

The value of the dairy products was $65,516.00; 1,456,800 gallons of milk were produced and 268,800 pounds of butter were made, of which 32,720 pounds were sent to market.

The county is rich in natural resources. Its oil and gas goes in pipe lines to distant states, and future developments are yet to be made. Excellent sandstone for building purposes abounds everywhere; limestone is also found.

Iron ore is found in the county but this has not been developed and its value and extent are yet to be discovered. There is an abundance of a very fine quality of fire clay, but this has not been utilized.

But the chiefest source of wealth is found in the coal fields which underlie the whole county and may be seen cropping from its hills. A five foot vein, 75 feet above the river, found in the hills in the vicinity of Glenville—the county seat—supplies that town with fuel. In the western portion of the county much of the coal is below the water levels and must be obtained by slope and shaft mining. For want of shipping facilities, none of the Gilmer coal has ever been mined except for local needs of the people of the county, but with a veiw of introducing railroad construction, the coal has been opened and tested and is found to be equal to the very best West Virginia coking coal of other regions. The construction of a railroad up the Little Kanawha Valley from Parkersburg to a connection with the West Virginia & Pittsburg Railroad and the Coal and Coke Railroad of the Elk River Valley is contemplated and much work done; part of the line is in operation and it will no doubt be completed in a short time, thus giving to all the Little Kanawha counties railroad connection east and west. Then will Gilmer be brought up to a high rank among the coal counties of the State.

A large part of the area of the county is still covered with a primeval forest in which stands a vast wealth of the greatest of the State's hard and soft wood trees.

Manufacturing is to be largely a development of the future. By the census of 1900 there were 74 manufacturing establishments, mills and shops in the county. These had an invested capital of $154,689.00; wages, $21,216.00; miscellaneous expenses of $3,448.00; cost of material, $157,487.00; and a finished product valued at $248,266.00.

The county has an efficient public school system. There is an enumeration of 4,123 school youth; an enrollment of 3,764 pupils in the 95 schools in which 104 teachers are employed. For the support of these schools, $21,513.74 were expended last year. A branch of the State Normal School is located at Glenville. (See p. 118.)

WEBSTER COUNTY.

Webster county, formed in 1860, from parts of Nicholas, Braxton, and Randolph, has an area of 450 square miles and had in 1900 a population of 8,862, which, because of recent development, has increased to fully 10,000. The county lies in the upper Elk River Valley and is slightly to the southeast of the center of the State. The Elk river flows centrally through it; in the southern portion are the upper waters of the Gauley, and in the northern part those of the Little Kanawha. The northern part is rolling and hilly plateau land, the soil being sand and loam. Here are "the glades" or marshy table lands, 2,400 feet above sea level; the surface is absolutely level; the soil is black; the area—some 3,000 acres—requires only drainage to convert it into excellent farming lands. The central and eastern portions are mountainous.

Extensive areas of forest are still standing and the cleared lands are chiefly along the rivers and small streams. In the county are 1,058 farms, of which 3 have less than 3 acres; 42 have 3 and less than 10 acres; 48 have 10 and less than 20 acres; 208 have 20 and less than 50 acres; 322 have 50 and less than 100 acres; 272 have 100 and less than 175 acres; 95 have 175 and less than 260 acres; 50 have 260 and less than 500 acres; 11 have 500 and less than 1,000 acres; and 7 have 1,000 or more acres.

In 1902, there were sown in the county 292 acres of wheat, producing 1,792 bushels, valued at $1,434.40; 955 acres of oats, producing 7,851 bushels, valued at $3,140.40; 4,173 acres of corn, producing 79,440 bushels, valued at $47,664.00; 36 acres of buckwheat, producing 312 bushels, valued a $156.00; 196 acres of Irish potatoes, producing 14,018 bushels, valued at $7,009.00, and 5,153 acres of meadow, producing 3,164 tons of hay, valued at $31,640.00. The total value of all agricultural products was $91,097.80.

The same year 39,338 apple trees yielded 67,722 bushels, valued at $40,633.20; 547 pear trees produced 342 bushels, valued at $273.60; 4,531 peach trees yielded 2,754 bushels, valued at $2,303.20; 1,898 cherry trees

yielded 495 bushels, valued at $990.00; 800 plum trees yielded 132 bushels valued at $264.00; and 11 acres in small fruits, yielded a production valued at $815.00. There were 13,899 pounds of grapes and 77,940 pounds of evaporated fruits.

As shown by the report of the Auditor of State for 1902, there were then in the county 1,553 horses, 3,988 cattle, 6,455 sheep, 2,731 swine, the total value of live stock for the year being $167,806.00. The number of poultry, including geese, ducks and chickens, was 20,825, valued at $6,453.00. The value of poultry raised the preceding year was $11,661.00, and 106,310 dozens of eggs were produced.

Shipping facilities are good. Within the county there are, on the Holly River & Addison Railway, 21.15 miles of main line, and 1 mile of sidings, valued by the Board of Public Works at $43,461.25; on the west Virginia & Pittsburg Railroad are 25.47 miles of main line, 3.26 miles of sidings, which with other railroad property is valued at $112,781.40. Thus the county has a total trackage of 50.88 miles, the whole valued at $156,242.65.

The county contains vast deposits of coal, chiefly of the New River coking varieties, which many years of the most active industry cannot exhaust. Iron ore has been found, but the deposits have not been developed. Good fire clay has also been found in some parts of the county. Mineral springs abound. (For a description of the famous Webster Springs, see page 360.)

KANAWHA COUNTY—CHARLESTON CITY.

Kanawha county, formed in 1789, from parts of Greenbrier and Montgomery, lies in the upper part of the Great Kanawha Valley. It has an area of 980 square miles and, in 1900, had a population of 54,696, now probably increased to 60,000. It is the third in size, and in population the largest in the State. Charleston, the seat of justice of the county, is the capital city of the State. The surface of the county is varied; mountainous in the east and south, hilly in the other parts with broad bottom lands along the Great Kanawha and tributary streams. The soil is naturally productive and is quite deep. The Kanawha Valley farms equal in fertility the broad bottoms of the Ohio, and they are well cultivated.

By the last census the total number of farms was shown to be 3,009; of this number 14 had less than 3 acres; 10 had 3 and less than 10 acres;

350 had 10 and less than 20 acres; 801 had 20 and less than 50 acres; 813 had 50 and less than 100 acres; 535 had 100 and less than 175 acres; 154 had 175 and less than 260 acres; 94 had 260 and less than 500 acres; 28 had 500 acres and less than 1,000 acres; and 7 had 1,000 or more acres.

The soils of the county are all fertile and yield good grain crops. Of wheat, 4,763 harvested in 1902, produced 33,734 bushels, worth $26,997.20; of oats, 3,218 acres produced 34,640 bushels, worth $15,856.00; of corn, 12,572 acres produced 149,880 bushels, worth $119,928.00; of buckwheat, 4 acres produced 60 bushels, worth $30.00; of Irish potatoes, 440 acres produced 26,119 bushels, worth $13,059.50; 4,803 acres in meadow produced 4,568 tons of hay, worth $45,680.00; of sorghum cane, 269 acres produced 294 tons of forage and 16,021 gallons of syrup. The total value of all agricultural products of the county was $221,550.70.

All varieties of fruit are largely grown and are very productive. In the year 1902, 103,950 apple trees yielded 73,647 bushels, valued at $44,176.20; 1,463 pear trees produced 537 bushels, valued at $429.60; 13,110 peach trees yielded 9,500 bushels, valued at $7,600.00; 6,771 cherry trees yielded 557 bushels, valued at $1,114.00; 2,693 plum trees yielded 968 bushels, valued at $1,936.00; 20 acres of small fruits yielded a production valued at $1,575.00. The total value of fruits for the year was $55,255.80.

The hill lands produce fine grasses and make splendid pastures; an interest in grazing and stock raising is rapidly developing. In 1902 there were in the county 3,537 horses, worth $141,480.00; 8,298 cattle, worth $165,960.00; 2,685 sheep, worth $5,370.00; 50 angora goats, worth $250.00; 3,233 swine, worth $9,699.00. The total value of all live stock for the year was $339,756.00. Of poultry there were 91,745 chickens, 1,447 turkeys, 4,826 geese, and 2,480 ducks, the whole valued at $29,490.00. The value of poultry raised the preceding year was $48,147.00; and in the same year 576,110 dozens of eggs were produced. There were 3,930 swarms of bees, valued at $12,379.00, and producing $52,750 pounds of honey and 840 pounds of wax. There were on farms, 5,699 milch cows and 210 dairy cows not on farms. Total value of all dairy products was $182,727.00.

An important industry is that of manufacturing. By the last census it was shown that there were in the county, outside Charleston City, 81 manufacturing establishments, having an invested capital of $1,576,963.00; employing an average of 747 wage earners who earned $277,496.00; miscellaneous expenses, $325,595.00; cost of material used $1,183,565.00; and a finished product of $2,100,741.00. Among recent manufacturing plants

established outside Charleston City is the Clendennin Lumber Company, with a capital of $17,000.00; the Paint Creek Coal Company, with a capital of $60,000.00; the Campbell's Creek Coal Company, capital, $56,000.00; Kanawha and Hocking Coal and Coke Company, capital, $3,500,000.00; the Mill Creek Cannel Coal Company, capital, $25,000.00; the Mill Branch Coal Company, capital, $30,000.00; and the American Column Company, capital, $25,000.00.

But notwithstanding the extensive agricultural, horticultural, grazing and manufacturing enterprise and activity, the greatest elements of wealth in the county are in its mineral resources. Chief of these are salt, iron, and coal. It was once the greatest salt producing region in the United States, but this is now practically a vanished industry. The iron is siderate and blackband; the former has been mined on Davis Creek and worked at Spring Hill, but the industry is now suspended. Hematites and gray carbonates also abound.

But the chief elements of wealth are the rich coal seams that everywhere underlie the county and fill its hills. All the soft coals found in the State are present here. The splint, steam, gas, fuel, coking, cannel and semi-cannel are all found in the county, and there is no part of it in which they are not found. The Kanawha-New River Coal Field is in the very heart of the great Appalachian Basin and is the richest on the globe. Kanawha county is in the center of this. The last report of the State Mine Inspector, that for 1903, shows that there are forty-nine mining operations in Kanawha county, producing 1,863,386 tons of coal; of this quantity 7,623 tons were used in operating the mines; 22,307 tons furnished local trade and tenants; 6,641 tons were used in coke ovens; and 1,786,815 tons sent to market. Of the total production in the county, 1,090,453 tons were mined with the pick; and 773,933 tons were machine-mined. These machines were used by 22 of the 49 operations. In the same year two coke plants operated 102 ovens; used therein 52,239 tons of coal and produced 29,722 tons of coke. The mining industry has but just begun in the county, and it will continue and increase for generations to come.

Excellent brick clays are found in the greatest abundance and many millions of bricks have been made. Fire clays are also present, in large deposits, but none has yet been worked. No finer building stone is to be found anywhere than that which fills the hills of Kanawha county. The Capitol Building, Court House, churches and business blocks show to good advantage the beauty and utility of the stone. The Federal Govern-

ment has made much use of it in the construction of locks and dams on the Great Kanawha. Glass sand also abounds. It has been tested, but, as yet, none of it used.

No other county in the State has greater railroad interests, or better shipping facilities than Kanawha. Within it on the Chesapeake & Ohio Railway there are 40.67 miles of main line, 11.86 miles of second main line, and 35.67 miles of sidings, valued at $659,306.00. On the Kanawha Railway are 15.99 miles of main line, and 5.06 miles of sidings, valued at $115,695.00. On the Kanawha & Michigan Railroad, are 41.59 miles of main line, and 22.13 miles of sidings, valued at $446,893.50. On the Winifrede Railroad are 6 miles of main line, 1.43 miles of branch line, and 3 miles of sidings, valued at $67,966.00. On the Kelley's Creek Railroad are 4.80 miles of main line, 1.26 miles of branch line, and 2.54 miles of sidings, valued at $24,263. On the Coal & Coke Railroad are 27.86 miles of main line, 1.97 miles of branch line, and 5.38 miles of sidings, valued at $123,924.00. On the Kanawha & Pocahontas Railroad are 13.53 miles of main line, 1.22 miles of branch line, and 1.67 miles of sidings, valued at $52,102.50. On the West Virginia & Southern Railroad are 5.47 miles of main line, 1.24 miles of branch line, and 1.44 miles of sidings, valued at $31,731.00. On the Kanawha & Coal River Railroad are 12 miles of main line, and 1.5 miles of sidings, valued at $24,300.00. Thus the county has a total trackage of 259.38 miles, valued, as a whole, at $1,546,181.00.

In addition there are 6.5 miles of the track of the Kanawha Valley Traction Line, valued at $42,000.00. The Great Kanawha river, which is rendered navigable the whole year by a splendid system of locks and dams constructed at great expense to the National Government, gives to the county slack-water navigation to the Ohio river.

The county has an efficient public school system. There are 233 schools; an enumeration of 16,448 school youth; an enrollment of 11,229 pupils; a District Building Fund of $21,588.16; a District Teachers' Fund of $34,952.51; a total of the two, exclusive of the county's share of the General State Fund, of $56,540.67. The taxable value of real and personal property outside of Charleston City, is $5,120,026.00. In Charleston it is $3,999,912.00.

CITY OF CHARLESTON.

The City of Charleston is the seat of justice of Kanawha county, the capital of West Virginia and the metropolis of the Great Kanawha

Valley. It was founded in 1788 on a spot made historic by the Indian wars. It is a flourishing commercial city, with a population, including suburbs, of probably 20,000, situated on the right bank of the Great Kanawha at the mouth of Elk river. It has splendidly paved streets, electric lights, gas, water works, good sewerage, electric street railway, bridges across both rivers, handsome city, state, county, and United States buildings, and is a growing, prosperous city. The business interests stand as solid as the foundations of the surrounding hills.

Charleston is the center of one of the richest of the several great coal fields of West Virginia. The field embraces three counties—Fayette, Kanawha, and Putnam—the aggregate annual output of which is now over 6,000,000 tons. How stupendous has been the growth of this great natural industry is evident in the fact that the output from this section for the year 1903 is greater than was the output of the entire State in 1880.

Nature and human thrift have joined hands in making Charleston an ideal distributing point for this great coal field. From the completion of the Chesapeake & Ohio Railway, which opened up the mining belt, the growth of the city has been steady. Three railroads and the most highly improved river in the South, afford transportation facilities which are always taxed to their capacity.

The City has a wholesale trade in all the various lines of merchandise which runs up into the millions. Transportation facilities enable the merchants to compete successfully with the wholesale houses of distant cities. With the possible exception of Wheeling, Charleston is now the most important distributing center in the State. Charleston supplies a larger section of the country with the necessities of life than any other city of its size in the United States. Capitalists of the country should make a note of this and invest in a place which is a solid commercial center. With many established wholesale houses, it covers a wide range of territory. The retail trade also runs into the millions.

The commercial importance of the city is typified by its six solid banking institutions with an aggregate paid in capital of $2,025,000.00; surplus and undivided profits of $577,477.54; and deposits to $2,738,689.80.

No other interest gives to the city the importance and permanent prosperity to be gained by diversified manufacturing and the Chamber of Commerce is actively engaged in extending this branch of the city's industrial enterprise. By the census of 1900, it was shown that there were in the city at that time, 119 manufacturing establishments, having an invested capital of $1,371,807.00; 1,176 wage earners, receiving annually $454,-

578.00; miscellaneous expenses, $95,991.00; cost of raw material, $1,033,-443.00; and a finished product valued at $2,052,762.00. Manufacturing establishments which have recently located in the city number 26, having an aggregate capital of $1,683,625.00.

SOME REASONS WHY MANUFACTURING ESTABLISHMENTS SHOULD LOCATE AT CHARLESTON-ON-KANAWHA.

1st. Because it is at the door of the most extensive coal field in the country, where steam and coking coal of a quality equal to or superior to any can be produced cheaper than in any other place in the world.

2nd. Because more natural gas and of a superior quality can be obtained here than in any other locality yet developed. The Kanawha Natural Gas, Light and Fuel Company (by assurance of the best experts in the country) claim they can supply 200,000,000 cubic feet per day, open flow, through their 8-inch pipe line from their wells in Roane county, which is now completed to this city.

3rd. Because the Kanawha river, navigable all the year, affording cheap transportation by water through the Ohio to New Orleans; the Chesapeake & Ohio Railroad running east through to Washington, Richmond, and to tidewater at Newport News, and to Cincinnati and the west through its connections; the Kanawha & Michigan Railway running through to Columbus and the Lakes; the Charleston, Clendennin and Sutton Railway, and connecting lines and branches built and being built, will furnish cheap transportation in all directions.

4th. Because additional shipping facilities will be available in the very near future by the extension of the C. C. & S. to Elkins and Pittsburg, connecting with the Wabash road, now building, making a through line to the North, East, and West, and to the Deep Water Railway, now under contract, running from Pool No. 1 of the Kanawha river through the coal measures of the Kanawha and New River District, to Bluestone connecting with Norfolk & Western Railroad, and thence to Tidewater, with probable connection with other Southern roads. Both of the above roads and extensions run through the largest coal beds in the State. In addition to the above, the Coal River Railroad being built up Coal River from St. Albans, twelve miles below Charleston, is under contract and extending into the large coal and timber territory of the Coal river region. The Cabin Creek Branch of the Chesapeake & Ohio is being extended through to Coal River. It will go through both Kanawha and New River measures to a point connecting with Piney Branch of the Chesapeake & Ohio Road.

Piney Branch is contracted to extend to the head waters of Guyandotte and one of these branches will most assuredly, in the near future, be built to and connected with the Norfolk & Western.

5th. Because there are now in operation more than 100 coal mines within a distance of seventy-five miles from Charleston and 30 more being developed and the new road and branches building, all of which will be large consumers of various products of manufacture.

6th. Because the distributing center for all the foregoing developments will be Charleston, the capital of the State and already a thriving city.

7th. Because the raw material (other than coal, coke, gas, and lumber) of almost every class and description can be assembled in Charleston as cheaply as at Pittsburg.

It is thus shown that no other cities of the country have better natural advantages for a great manufacturing center than Charleston. Under its system of locks and dams, the Great Kanawha river is navigable every day in the year, and the railroads are trunk lines, excepting the Coal & Coke Railroad which will soon be completed to Sutton and open up direct communication with the B. & O., North, West, and East. The Chesapeake & Ohio has made definite plans to bridge the Kanawha river at this point and furnish additional facilities for handling freight. The Charleston Traction Company is now securing right of way for extending the electric line to Malden and other suburban points. With abundance of surrounding coal and an inexhaustible supply of natural gas which is now being sold as low as eight cents per thousand cubic feet, for manufacturing purposes, and which may doubtless be further reduced with a stimulus in that direction. With coke and limestone easily available, there is every reason for predicting success to furnaces and structural steel plants in this vicinity. Wood working industries have shown a marked success and there is still room for more. All miscellaneous lines thriving and with fire clay, glass sand, etc., there are many chances open for great industries here. What Charleston most needs is numerous diversified factories. Sites can be readily secured and there is abundance of idle capital to assist any legitimate enterprise with needed funds. Small factories will grow into larger ones and it is these that make permanent cities. The people of Charleston invite all prospectors to examine its merits and then come and dwell with them.

Charleston's Chamber of Commerce will gladly answer all correspondence and lend a helping hand to any who desire to locate here.

FAYETTE COUNTY.

Fayette county, formed in 1831, from parts of Kanawha, Greenbrier, Nicholas, and Logan, lies in the Upper Kanawha-New River Valley. It has an area of 730 square miles and in 1900 had a population of 31,987 which is now increased to probably 35,000. Of the counties of the State, Fayette is fifth in size. It is situated on the Cumberland Plateau; is high and mountainous, the surface being badly broken; but withal there is much arable land. The New River flows in a northwest course until it unites with the Gauley, thus forming the Great Kanawha, which thereafter for thirteen miles flows through the county. The Grand canon of New River is the most remarkable scenery east of the Mississippi. The soil, a light, and a sandy loam on the table lands, is well suited to certain kinds of agriculture.

By the census of 1900, there were in the county 1,128 farms; of this number, 1 had less than 3 acres; 49 had 3 and less than 10 acres; 58 had 10 and less than 20 acres; 215 had 20 and less than 50 acres; 377 had 50 and less than 100 acres; 280 had 100 and less than 175 acres; 85 had 175 and less than 260 acres; 49 had 260 and less than 500 acres; 6 had 500 and less than 1,000 acres; and 5 had 1,000 or more acres.

The lands produce the cereals and excellent grass for pasturage. In 1902 there were harvested 1,045 acres of wheat, which produced 10,237 bushels, valued at $8,189.60; 1,917 acres of oats, which produced 29,070 bushels, valued at $11,628.00; 3,487 acres of corn, which produced 74,041 bushels, valued at $44,424.60; 180 acres of buckwheat, which produced 2,727 bushels, valued at $1,363.55; 425 acres in Irish potatoes yielded 29,688 bushels, valued at $14,844.00; of meadows, 3,788 acres produced 2,720 tons of hay, valued at $37,200.00. Of sorghum cane, 90 acres produced 156 tons of forage and 5,028 gallons of syrup. The total value of all agricultural products for the year was $117,694.70.

The fruit industry is in its infancy, but beginning to develop rapidly. In 1902, there were of apples 36,694 trees yielding 32,423 bushels, valued at $19,453.80; of pears, 1,155 trees, yielding 515 bushels, valued at $412.00; peaches, 3,938 trees yielded 1,191 bushels, valued at $952.80; of cherries, 3,046 trees, producing 390 bushels, valued at $780.00; of plums, 397 trees,

producing 82 bushels, valued at $166.00; of small fruit, 29 acres yielded a production valued at $1,625.00. The total valuation of all fruits for the year was estimated at $21,764.60.

Wherever the lands are cleared the indigenous grasses afford excellent pasturage and the live stock interests are increasing. In the last mentioned year there were in the county 3,515 horses and mules, valued at $40,600.00; 8,736 cattle cattle, valued at $174,720.00; 2,574 sheep, valued at $5,148.00; 2,425 swine, valued at $7,375.00. The total value of all live stock was $334,095.00.

Of poultry, there were 25,360 chickens, 559 turkeys, 1,307 geese, and 463 ducks, the whole valued at $8,194.00. The value of poultry raised the preceding year was $14,293.00; and 132,960 dozens of eggs were produced. There were 1,871 swarms of bees, worth $6,926.00, and producing 28,340 pounds of honey, and 560 pounds of wax. At the same time there were 3,166 milch cows on farms, and 763 dairy cows not on farms.

There were 77 manufacturing establishments of various kinds in the county in 1900; these had a capital stock of $1,679,993.00, 56 salaried clerks and officials, receiving $46,020.00; 889 wage earners received $284,652.00; miscellaneous expenses, $49,239.00; cost of raw material, $747,686.00; and a finished product valued at $1,375,139.00. To these have been recently added the following: The Victoria Coal & Coke Company of Caperton with a capital of $500,000.00; the Big Bend Coal Company, capital, $30,000, at Dimmock; the Carver Brothers at Eagle, capital, $200,000.00; the Fire Creek Coal & Coke Company, capital, $100,000.00; the Montgomery Light-Heat Improvement Company, capital, $6,000.00; Montgomery Supply Company, capital, $50,000.00; the Mount Hope Coal & Coke Company, capital, $10,000.00; the Mount Hope Publishing Company, capital, $1,000.00; White Oak Transportation Company, capital, $20,000.00; the Raven Coal and Coke Company, at Stony, capital, $50,000.00; the New River Colliery Company, at Thayer, capital, $18,000.00.

The chief elements of wealth in Fayette are her natural resources. Limestone exists, and there are mountains of the finest sandstone for building purposes. Iron ore of a fair quality exists in several localities; some of this has been worked, but little attention has, as yet, been given to it. Fire clay of excellent quality and great abundance, together with the best of clays for making paving and building brick. There are yet extensive areas of forest in which stand the best timber of the State.

But Fayette stands far above all other counties in the State in the order of coal and coke production. The entire county is underlaid with

coal and it is seam above seam to the very tops of the mountains. (See the Geological Formations of West Virginia, p. 193 and forward.) As stated the area of the county is 730 square miles, or 467,200 acres; and it is believed that no other similar area on the globe contains more coal than this. From the last Report of the Chief Mine Inspector of the State, it appears that there were 96 mining operations in the county, which in 1902, produced 5,724,882 tons of coal; of this, 52,629 tons were used in operating the mines; 70,047 tons furnished local trade and tenants; 792,443 tons were used in coke ovens; and 4,809,763 tons were sent to market. The selling price of the total production was $5,750,000.00. The average number of days the mines were in operation was 208; and 8,089 men were employed inside the mines and 1,712 outside, a total number of employees of 9,801. It is shown that for the year 1,045.52 acres of coal seam were excavated. Not 20,000 acres have as yet been worked out. And if it be true that the coal bed acreage be co-extensive with that of the county, it will require, at the present rate of mining, more than five centuries, to exhaust the Fayette coal fields. In the same year, there were 2,939 coke ovens in the county, of which 626 were not in use. Those in operation, 2,313, produced 515,398 tons of coke, the selling price of which was $1,150,000.00. 801 men were employed at the ovens.

The county has most excellent shipping accommodations; no other has so much railroad trackage within it. On the Chesapeake & Ohio Railway, are 56.95 miles of main line, 30.17 miles of second main line, and .54 miles of sidings, valued at $1,006,137.00; on the Loup Creek Branch are 9.89 miles of of main line and 11.94 miles of sidings, valued at $99,080.00; on the Greenbrier and New River Road are 18.33 miles of main line, and 4.45 miles of sidings, valued at $129,157.50; on the Keeney's Creek Railroad are 7.82 miles of main line and 2.84 miles of sidings valued at $52,600.00; on the Hawk's Nest Railroad are 3.38 miles of main line and 1.58 miles of sidings, valued at $21,355.00; on the Gauley River Railroad, are 6.88 miles of main line, and .7 miles of sidings, valued at $33,085 On Piney Creek Railroad are .30 miles of main line, valued at $900.00; on the White Oak Railroad are 3.6 miles of main line and 4.14 miles of sidings, valued at $17,010. On the Powelton Railroad are 5.2 miles of main line, and 2.8 miles of sidings, valued at $22,430.00; on the Kanawha & Michigan Railroad are 10.95 miles of main line and 17.63 miles of sidings, valued at $146,673.50; on the Kanawha & Pocahontas Railroad are .37 miles of main line, valued at $1,235.50; on the Deep Water Railroad are 4 miles of main line, valued at $12,000; and on the Glade Creek & Raleigh Rail-

road is 1 mile of main line, valued at $2,980. Thus the county has 241.03 miles of trackage, valued at $1,539,747.50.

The county has an efficient public school system. There are 235 schools; 11,229 school youth enumerated; and 9,341 pupils enrolled in the schools. The District Building Fund is $21,986.76; the Teachers' District Fund, $28,175.22; total school fund, exclusive of the county's portion of the State Fund, $50,161.98. The total taxable value of all real and personal property in the county is $5,320,415.00.

Fayetteville, an enterprising town, and the seat of justice, is situated on a pretty table land on the south side of New River, four miles from Fayetteville Station on the Chesapeake & Ohio Railway. From it may be had one of the most beautiful and extensive views in the whole mountain system of the State. The town is distant 54 miles from Charleston, 202 from Wheeling, 333 from Richmond, 265 from Cincinnati, and 570 from Chicago. The chief town of the county is Montgomery, in the extreme northwestern part on the left bank of the Great Kanawha River, and on the line of the Chesapeake & Ohio, and the Kanawha & Michigan railroads. It is one of the busiest towns in the State and has, by way of the Great Kanawha, slack-water navigation to the Ohio river. The Montgomery University Preparatory School is located here. (See p. 112.)

MONROE COUNTY.

Monroe county, formed in 1799 from part of Greenbrier, has an area of 460 square miles, and in 1900 had a population of 13,130. This has increased since that time. It is a southern border county directly south of the center of the State. It is separated from Virginia by Peters and Potts mountains; Greenbrier river forms part of its northern boundary and the New River washes its southeastern corner.

Monroe is one of the three counties of the State in which coal is not found, but nature has made ample compensation in the distribution of other elements of wealth. In the eastern part of the county Pott's Creek has its rise and flows away northward to mingle its waters with those of the historic James river of Virginia. The mountains skirting it on either side and around its source are masses of iron ore and form what is known as "Pott's Creek Iron Region." Indications of oil and gas are to be seen in the southern part of the county. Geologists who have examined the

formations declare that the region contains oil-bearing rock and tests are now to be made. A derrick has been erected at Cashmire in Red Sulphur District, twenty-four miles from Union. The machinery is on the ground and drilling is to be done at once.

The lands over all the county are very fertile, and farming, fruit growing and grazing are the chief industries or employments of the people. There are in the county 1,794 farms; of these 8 have less than 3 acres; 65 have 3 and less than 10 acres; 119 have 10 and less than 20 acre; 339 have 20 and less than 50 acres; 440 have 50 and less than 100 acres; 397 have 100 and less than 175 acres; 209 have 175 and less than 260 acres; 160 have 260 and less than 500 acres; 44 have 500 and less than 1,000 acres; 13 have more than 1,000 acres.

The soil is loam, clay, and calcareous clayey loam, these making the best of farming lands. In 1902 there were harvested 7,493 acres of wheat, yielding 101,056 bushels, worth $80,844.80; 886 acres of oats, yielding 16,594 bushels, worth $6,997.60; 8,059 acres of corn, yielding 294,871 bushels, worth $76,922.60; 210 acres of buckwheat, yielding 3,132 bushels worth $1,566.00; 157 acres of Irish potatoes, yielding 15,640 bushels, worth $7,824.00; 10,199 acres of meadow, yielding 13,975 tons, worth $139,750.00; 122 acres of sorghum cane, from the production of which 8,726 gallons of syrup. Total value of agricultural products for the year, $413,705.00.

Fruits of all varieties grow to perfection. In 1902 of apples, 60,237 trees, produced 75,279 bushels, valued at $45,167.40; of pears, 1,214 pear trees, produced 1,236 bushels, valued at $988.88; of peaches, 8,051 trees produced 5,860 bushels, valued at $4,688.00; of cherries, 5,894 trees produced 409 bushels, worth $819.00; of small fruits, 21 acres yielded a production valued at $2,728.00. The total value of all fruits was $58,762.20.

Grazing may be said to be the principal industry. Of horses and mules in the county, in 1902, there were 4,202, worth $168,000.00; of cattle, 13,840, worth $276,960.00; of sheep, 21,209, worth $42,418.00; of swine, 4,811, worth $14,443.00. The total value of all live stock in the county was $519,755.00. Of poultry, there were 56,198 chickens, 6,128 turkeys, 3,743 geese, and 1,113 ducks; the whole valued at $23,568.00; the value of poultry raised the preceding year was $49,610.00, and 384,230 dozens of eggs were produced.

There were, also, 2,471 swarms of bees, valued at $7,778.00, producing 29,110 pounds of honey, and 1,101 pounds of wax. There were 6,039

milch cows on farms, and 10 dairy cows not on farms, 391,476 pounds of butter were produced of which 112,108 pounds were sent to market. There were 15,563 fleeces of wool, weighing 71,190 pounds sent to market.

The county has good shipping facilities; the Norfolk & Western Railroad runs along its southern border while within it on its northern boundary there are on the Chesapeake & Ohio Railway, 3.47 miles of main line, 3.47 miles of second main line, and 1.37 miles of sidings, the whole valued at $67,536.00.

Monroe county is a land of mineral springs. (See pp. 257, 258, 259.)

LOGAN COUNTY.

(WRITTEN BY COL. H. C. RAGLAND, FOR THE COUNTY COURT.)

Logan county is situated in the Southern section of West Virginia, and is about forty miles in length and twenty miles in breadth.

The Guyandotte river, one of the loveliest streams in the State, flows near the center of the County, through its entire length, in a northerly direction, while the Coal river near its eastern border flows through it for some twenty-five miles. The soil along the rivers and their tributaries is among the most fertile in the state, and furnishes homes for a population of about ten thousand persons. And its scenery is among the most picturesque in the State.

In the year 1900 there were in Logan county 940 farms: of this number, 1 had less than 3 acres; 116 had 3 and less than 10 acres; 139 had 10 and less than 20 acres; 198 had 20 and less than 50 acres; 196 had 50 and less than 100 acres; 130 had 100 and less than 175 acres; 65 had 175 and less than 1,000 acres; 16 had 1,000 or more acres.

CLIMATE.

The climate is all that could be asked for it. The average temperature for 1903 was 57 3-10, and the total rainfall was 45 inches, including melted snow. The warmest day was 97 above zero, on July 7th, and the coldest of the severe winter of 1904 was 5° above zero, on February 17th, 1904, while the total snowfall for the winter was only 33 inches. Vegetation is ten days earlier in the Guyandotte Valley than in any other section of the State. Killing frosts rarely ever occur earlier than November 1st or later than April 1st. The soil is well adapted to all of the garden veg-

etables, as well as to corn, potatoes (both Irish and sweet) oats, rye and the various grasses. For the year 1902, the county had 350 acres in wheat, producing 1,402 bushels, worth $1,121.60; 117 acres in oats, producing 605 bushels, worth $242.00; 5,580 acres in corn, producing 88,720 bushels, worth $53,232.00; 91 acres in Irish potatoes, producing 5,242 bushels, worth $2,621.00; 837 acres in hay, producing 1,147 tons, worth $11,470.00. Total value of these products, $60,686.60.

TIMBER.

Less than one-fifth of the lands of the county are cleared and in cultivation, and the residue of it is covered with the finest of oak, hickory, ash, cucumber and other timber. A large portion of the walnut and poplar timber has been cut and marketed, but there are still left some fine tracts of these valuable woods, and their rapid growth will soon supply the quantity which has been taken away. This timber in rafts or loose, float over the Guyandotte river, which furnishes enough water in the spring and early summer months to float it to market at the mouth of the river, at a mere nominal cost. Saw mills are also going up all over the county, to manufacture it into lumber, which can be shipped to market over either the river or the Guyandotte Valley Railway, which will be completed to Logan Court House by July 15th, 1904.

FRUITS.

Fruits of every kind do well in the county. While little or no attention has been given heretofore to the cultivation of fruits, except for home consumption, but now as we are about to get a railroad through the center of the county, with branches leading in every direction, commercial horticulture will soon be one of our leading industries. The soil and climate are well suited to the production of the apple, the peach, the pear, the quince, the cherry, the plum, the grape and all of the berries. We have found the best apples for our section, to be the Tompkin's King, Grime's Golden, Pearmain, Maiden-Blush, Ben Davis, Rome Beauty, Wine Sap, Early Harvest and the Yellow Transparent, yet all other kinds of apples will do well. There is a general exemption from blight and scab. The provision made by Nature in the production of wild fruits is abundant, including raspberries, dew berries, black berries, whortle berries, mulberries, &c., all of which abound in great variety and supreme excellence.

For the year 1900 Logan county reported 13,674 apple trees, producing 20,563 bushels, worth $12,337.80; 57 pear trees, producing 107

bushels, worth $85.60; 201 peach trees, producing 174 bushels, worth $139.20; 15 cherry trees, producing 9 bushels, worth $18.00; 6 plum trees, producing 5 bushels, worth $10.00. Total value of fruit, $12,590.60.

CATTLE.

Prior to the war between the states the raising of cattle and sheep was the leading industry of the county, but since then lumbering has taken the precedence, and cattle and sheep have been neglected. The county is, however, adapted to the raising of both, as our large area of timber land upon which all of the wild grasses grow luxuriantly, furnish pasturage, and the mildness of our winters requires but little food to bring them through the winter safe. In 1902 there were in Logan county, 1,245 horses, worth $49,800.00; 4,217 cattle, worth $84,349.00; 1,527 sheep, worth $3,654.00; 8,353 hogs, worth $10,050.00. Total value of live stock, $147.253.00.

COAL.

Our greatest wealth is, however, to be found in our deposits of coal and other minerals. There are various veins of bituminous coal, and in fact all other kinds of coal, except anthracite, of over two feet in thickness, which will aggregate eighty-eight feet of coal. Our workable veins of bituminous coal range from four to thirteen feet in thickness. While the famous Pocahontas coal is said by experts to be less than one hundred feet under the surface. In several localities a partial local development for domestic purposes, shows in the same mountain, four workable veins of bituminous coal, two of four feet each, one of five feet and one of seven feet. While cannel coal is found in veins of five feet thick. Many of the streams flow over beds of solid coal, from the top of which the earth has been washed away. Almost anywhere upon the mountain where the pick is struck coal may yet be found. Yet with all of this hidden wealth the world has received no benefit from it, by reason of the fact that we have had no way of transporting it to market. But now the Guyandotte Valley Railroad, a branch of the C. & O. Road, is being built through the county. (This road will run up the Guyandotte Valley for forty miles in the county, the first twenty miles bringing it to Logan Court House, will be completed in July.) Developments are rapidly being unfolded. Five coal mines by large and responsible companies are now being worked. The first, The Stone Branch Coal Company, thirteen miles north of the Court House, on the Guyandotte river, is mining a vein of five feet of coal of superior quality. Next comes The Draper Coal and Coke Company, on the northern skirts of the town,

which is mining a vein of seven feet of coal. Both of these plants are on the main line of the railroad and will be shipping coal by August 1st. Next the Monitor Coal and Coke Company, situate about two miles to the southwest of Logan Court House, on the main fork of Island Creek, is mining a vein of coal seven feet thick. Next, The Mounts-Fisher Coal Company, a mile west of Logan Court House, is mining a seven foot vein of coal. And last but not least, The United States Coal and Oil Company, is mining a vein of seven feet of coal on the Trace Fork of Island Creek, about four miles southwest of Logan Court House.. This last will probably be the largest operation in the State. The Company has already built up a town of some one thousand inhabitants, with all the modern improvements, and every facility for mining. The coal in all of these veins is of very superior quality, and the mines will be reached by branch lines of the main line of the Guyandotte Valley Railway, connecting at Logan Court House. Thousands of acres of other lands equally as rich in coal and equally as accessible to the market, are ready to be leased or sold. Iron ores are found throughout the county, but their extent and value are still unknown, as no developments have been made. There is also lead in the county. In the olden times the pioneers used to run their bullets out of native lead, but its commercial value is not known. While no oil has as yet been discovered in the county, there having been no drilling done, there are many indications of its existence. We are on the regular oil line, and natural gas bubbles up in every part of the county. Our fire clay is an excellent quality and is found in great quantities, but as yet has not been worked. Our building stone, of gray sand stone, is the finest in the world, while there is slate which we believe to be adapted to roofing purposes. None of these things, however, as yet, has been developed, and all are waiting for the capitalist to unlock the doors of our material wealth.

MANUFACTURING.

The close proximity of our fuel, timber, &c., makes this a desirable locality for manufactures, especially those of wood and clay. Nothing has as yet been done in this line. The Hudson School Furniture Company with a capital of One Hundred Thousand Dollars, is erecting its plant at Logan Court House and will give employment to some three hundred hands. About half of this is home capital, and the people stand ready to not only welcome, but to assist other enterprises, and heartily invite them to come.

RELIGION.

There are churches of various denominations, throughout the county, Baptists, Disciples, Methodists, &c., and the morality of the county is on a high plane, there not being a single licensed saloon in the county. The people are industrious, frugal and hospitable, and the latch string hangs on the outside of the door, for any honest man representing an honest enterprise, to come and settle with us and assist us in the development of the county.

FINANCES.

Our finances are in first-class condition. While we are not in debt for a single dollar, and have a large surplus in the hands of the sheriff, our assessment of taxes for all purposes, State, County, Road, School, and Building, on the $100.00 valuation of property for the last year (1903) was as follows: Logan District, $1.25; Chapmansville District, $1.75; Triadelphia District, $1.40, and that notwithstanding the fact, that our real estate was assessed at less than one-fourth of its present market value.

GREENBRIER COUNTY.

Greenbrier county, formed in 1777—the second year of the American Revolution—has an area of 1,000 square miles, and a population of 21,000; it is the second county in size in the State. On both the eastern and western sides the surface is mountainous, while the central part is an extended plateau, or mountain table land, known for more than a hundred years as the "Big Levels". Over its whole extent the soil over limestone is yellowish and composed of clay and calcareous matter. Here are highly cultivated fields and the county is among the foremost in agriculture in the State.

By the census of 1900, there were in the county, 2,434 farms; of this number 22 had less than 3 acres; 106 had 3 and less than 10 acres; 121 had 10 and less than 20 acres; 447 had 20 and less than 50 acres; 614 had 50 and less than 100 acres; 568 had 100 and less than 175 acres; 246 had 175 and less than 260 acres; 194 had 260 and less than 500 acres; 79 had 500 and less than 1,000 acres; 37 had 1,000 or more acres.

The lands produce excellent crops. Of wheat, 5,968 acres produced 86,184 bushels, worth $68,947.20; of oats, 1,446 acres produced 24,182 bushels, worth $9,862.80; of corn, 7,666 acres produced 207,686 bushels,

worth $124,611.60; of Irish potatoes, 168 acres produced 15,604 bushels, worth $7,802.20; of meadow, 10,294 acres produced 12,680 tons of hay, worth $126,800.00. Of sorghum cane, 167 acres produced 198 tons of forage and 9,312 gallons of syrup. The total value of all agricultural products for the year, 1902 was $339,359.60.

Fruitful orchards abound and fruit growing is becoming an important industry. Of apples, 56,182 trees yielded 94,382 bushels, worth $56,599.20; of pears, 2,194 trees, yielded 2,106 bushels, worth $1,684.80; of peaches, 9,814 trees yielded 4,706 bushels, worth $3,764.80; of cherries, 8,730 trees yielded 10,286 bushels, worth $20,572.00; of plums, 782 trees yielded 354 bushels, worth $708.00; of small fruits, 29 acres yielded a production worth $2,102.00. The total value of all fruits grown in the county for the year was $83,329.80.

The most magnificent blue grass springs up in every portion of the county as soon as the forests are removed, and no part of Kentucky can excel the "Plateau Region" of Greenbrier in the production of Blue Grass. Hence, the live stock interests are the most important. In the year 1902, there were in the county, 6,578 horses and mules, valued at $263,120.00; 17,591 cattle valued at $351,820.00; $26,485 sheep, valued at $52,970.00; 5,493 swine, valued at $16,479.00. The total value of all live stock in the county for that year was $702,393.00.

Of poultry, there were 72,073 chickens, 4,756 turkeys, 2,692 geese, 1,638 ducks, the value of the whole being estimated at $26,070.00; the value of poultry raised the preceding year was $53,237.00; the same year 423,580 dozens of eggs were produced. There were 2,642 swarms of bees, valued at $6,336.00, and producing 34,310 pounds of honey, and 1,260 pounds of wax. There were 7,853 milch cows on farms; and 236 dairy cows not on farms. 1,988,520 gallons of milk were produced, and 372,984 pounds of butter made, of which 109,356 pounds were sent to market. The total value of all dairy products was $109,799.00.

By the census of 1900, it is shown that in that year, there were in Greenbrier county 105 manufacturing establishments, including factories and shops, with an invested capital of $741,967.00; wages, $57,858.00; miscellaneous expenses, $10,717.00; cost of material, $234,819.00; value of finished product, including custom work and repairs, $415,416.00.

The county has excellent shipping facilities; within it on the Chesapeake & Ohio Railway there are 26.7 miles of main line, 20.05 miles of second main line, and 8.39 miles of sidings, valued at $480,707.50; on

the Greenbrier River Railroad are 35 miles of main line and 3.94 miles of sidings, valued at $129,370. Thus it is seen that the county has a total trackage of 94.08 miles, valued at $610,077.50.

The county is rich in mineral resources. In the western part are workable seams of coal, not yet developed. Valuable deposits of iron ore exist in the valleys of Anthony's and Howard's creeks, and help to form the mountain walls along the eastern border. Limestone exists in greatest abundance and of all grades, for agricultural, building, and hydraulic lime. Lime-stone marble is found in Beaver Lick Mountain and gray marble in the hills over-looking the Greenbrier river. Gypsum is found at the mouth of Second creek, and excellent grit for grindstone, in different localities. To these may be aded numerous other elements of wealth. Mineral springs abound, among them the famous White Sulphur Springs. (See pp. 255-262.)

Greenbrier has the very best of educational facilities. There are in the county 189 public schools in which 201 teachers are employed; there is an enumeration of 7,348 school youth, and an enrollment of 5,582 pupils in the public schools, and last year $46,325.26 were expended in support of these schools. For more than a hundred years, Lewisburg, the seat of justice, has been an abiding place of culture, refinement, learning, and intellectual life. Here the old Lewisburg Academy, founded in 1808, did more than half a century of work and sent forth from its walls teachers, orators, warriors and statesmen. Here, too, the Lewisburg Female Institute, incorporated April 7, 1858, has been engaged, for nearly fifty years, in training young ladies for life's work. It has become a famous school and is widely known as one among the institutions of the highest order of female education. A notable event in the history of the Institution occurred in 1892 when the stock-holders transferred the property to the Presbyterian church. There was then donated $11,000.00 to the school by its friends and an era of material progress was inaugurated. Additional land was purchased and new furniture and apparatus supplied. On December 16, 1901, the buildings of the school were totally destroyed by fire. But there was little delay. $60,000.00 was secured and, Phœnix-like, the institution arose from its own ashes, to be more useful than ever and to win the popularity it now enjoys.

MASON COUNTY.

Mason county, formed in 1804, from a part of Kanawha, has an area of 432½ square miles and a population of 25,000. The winding course of the Ohio river sweeps along past fifty-six miles on one-third of its boundary, while the Great Kanawha flows north-westerly, dividing the county into two nearly equal parts, and empties into the Ohio at Point Pleasant, the seat of justice. With a river frontage of fifty-six miles on the Ohio and eighteen miles on each side of the Kanawha—ninety-two miles in all—and an average width of the bottoms along the two rivers of one mile, it is seen that there are ninety-two square miles of river bottom land. In addition to this, there are two little plains, or levels, known respectively as Pleasant Flats, and the Dutch Flats, on the two of which there are about ten square miles. With other bottoms along the smaller valleys there are fully 100,000 acres, one-fourth its area, of level land in the county. The other portions of the county are hilly and undulating. The hills are low except in the eastern part where the surface is more broken. The soil on the bottoms is a rich loam very deep; that on the hills is made up of clay, clay loams, and calcareous loams, intermingled with the red sediments of the Conemaugh Series. More than half the county is now under cultivation and nearly the whole surface will be arable when the remaining forest is removed. The county is among the wealthiest in the State. Its total valuation of real and personal property, for taxable purposes, amounting to $5,047,356.29.

There are in the county 2,665 farms; of this number 20 have less than 3 acres; 138 have 3 and less than 10 acres; 236 have 10 and less than 20 acres; 647 have 20 and less than 50 acres; 764 have 50 and less than 100 acres; 536 have 100 and less than 175 acres; 167 have 175 and less than 260 acres; 111 have 260 and less than 500 acres; 34 have 500 and less than 1,000 acres; 12 have 1,000 or more acres.

The lands are exceedingly fertile and from the days when the Red Man warred with the White Man for their possession, some of them have been cultivated and are highly productive still. The annual yield of crops places Mason first in the list of agricultural producing counties. In 1902, of crops harvested, the yield was as follows: Of wheat, 13,764 acres produced 89,644 bushels, valued at $71,691.20; of oats, 1,725 acres produced 21,259 bushels, valued at $8,503.60; of corn, 15,670 acres produced 216,401 bushels, valued at $129,840.60; of buckwheat, 45 acres produced 348 bushels, valued at $174.00; of Irish potatoes, 457 acres produced 18,077 bushels, valued at $9,038.50; of meadow, 9,123 acres produced 6,469 tons of hay, valued at $64,690.00; of sorghum cane, 238 acres produced 148

tons of forage and 16,558 gallons of syrup. The total value of all agricultural products for the year was $283,937.80. Much of the soil is especially adapted to melon culture and from 1200 to 1800 acres are planted annually, and much of the product shipped to distant states. 20,000 crates of "nutmeg" muskmelons have been shipped in a single year.

Mason is rapidly advancing to a prominent place among the fruit growing counties of the State. In 1902, of apples 123,890 trees yielded 21,660 bushels, worth $12,966.00; of pears, 2,210 trees yielded 459 bushels, worth $367.20; of peaches, 63,410 trees yielded 19,357 bushels, worth $15,485.60; of cherries, 9,423 trees yielded 586 bushels, worth $1,172.00; of plums, 8,019 trees yielded 614 bushels, worth $1,228.00; of small fruits, 80 acres yielded a production valued at $5,058.00; the total value of all fruits for the year was $31,248.80.

The county is widely known because of its live stock interests which make it one of the principal grazing counties of the State. Blue grass is indigenous on the upland where it continues green nearly all the winter. Clover, timothy, red-top, and other tame grasses grow luxuriantly on all bottom lands. Blooded horses, cattle and sheep are raised in large numbers, and some very fine animals are bred. Speed horses have been numerous for years and some of them have made world's records. Cattle are bred both for beef and milk. Beef cattle are shipped in large numbers and many of them go to foreign countries. In 1902 there were in the county of horses and mules, 4,129, valued at $165,160.00; of cattle, 10,494, valued at $209,880.00; of sheep, 8,693, valued at $17,386.00; of angora goats, 9, valued at $45.00; of swine, 5,172, valued at $15,516.00. The total value of all live stock in the county for the year was $407,987.00.

There were 5,217 milch cows on farms, and 229 dairy cows not on farms, not classed with live stock above. 2,119,788 gallons of milk were produced and 459,632 pounds of butter were made, of which 137,359 pounds were sent to market. The total dairy products for the year were valued at $127,049.00.

Of wool, 8,693 fleeces, weighing 53,630 pounds, valued at $11,726.00 were sent to market. There were 2,337 swarms of bees, valued at $6,701.00, producing 33,823 pounds of honey and 230 pounds of wax. Of poultry, there were in the county 92,860 chickens; 2,327 turkeys; 2,222 geese, and 1,572 ducks, the whole valued at $32,674.00; the value of poultry raised the preceding year was $58,857.00, and the eggs produced numbered 667,880 dozens.

The county is rich in mineral resources; its entire area is underlaid with coal, chief among the veins being the famous Pittsburg seam. Min-

ing began here in 1847 and has continued from that time to the present. The last report of the Chief Mine Inspector of the State shows that for the year 1902, there were 8 mining operations in the county; that 246 miners were employed inside the mines and 32 laborers outside; that the mines were operated an average of 246 days; that 113,527 tons, or 3,000,000 bushels, of coal was produced, of which 1,523 tons were used in operating the mines; 36,137 tons, furnished the local trade and tenants; and 75,867 tons sent to market. During the year 21.68 acres of coal seam were excavated, or worked out, and at the present rate of mining generations will pass away before the supply will be exhausted.

Throughout the county, cropping from the river hills and along the creek valleys is a handsome grey sand stone in greatest abundance suitable for building and paving purposes. Bridge piers in both the Ohio and Kanawha rivers as well as lock and dam wells on the latter, are constructed from this stone, which is found to completely resist the action of the water. A bed of fire clay is known to exist at Mason City, but this has not been developed. At Spillman, the Camden Clay Company have vast deposits of material, and manufacture on an extensive scale, paving brick, shingles, and roof tiling.

In 1900, there were in the county, 50 manufacturing establishments of various kinds, having an invested capital of $588,350.00; 33 salaried officials and clerks, receiving aggregate salaries of $23,526.00; and an average of 377 wage earners receiving $109,468.00; miscellaneous expenses, $23,613.00; cost of material, $264,900.00; and a finished product valued at $497,367.00. This interest has been increased. Thirty years ago ten furnaces made a million bushels of salt annually; but this business is now practically a vanished industry.

The county has the best of shipping facilities both by rail and river. There are within it, on the Ohio River division of the Baltimore & Ohio Railroad, 52.06 miles of main line and 9.04 miles of sidings, valued at $385,874.01; on the Kanawha & Michigan Railroad are 17.77 miles of main line and 5.31 miles of sidings, valued at $303,504.50; a total trackage of 84.18 miles, and a total valuation of $689,378.51.

There is an excellent public school system. There are 158 schools in which 177 teachers are employed; the enumeration of school youth is 7,749; the enrollment of pupils, 5,835. The District Building Fund is $13,028.70; the District Teachers' Fund, $20,227.73; the total of both funds, exclusive of the State funds, $33,256.43; the county's share of the General State Fund, $12,500.48. Total sum expended for education, outside of Point Pleasant, was $21,513.74. Total value of school property, $109,887.07.

Important towns in the county are, Leon, on the Great Kanawha, and Spillman, West Columbia, Clifton, Mason City, Hartford City, New Haven, and Letart Falls, on the Ohio. All are excellent manufacturing sites, and the people of each will actively aid in establishing industries.

POINT PLEASANT.

Point Pleasant, the seat of justice of Mason county, is situated at the mouth of the Great Kanawha river, on the site of the most fiercely contested battle ever waged between Indians and white men in America. Situated as it is on the banks of two navigable rivers, the town is afforded the advantage of the cheapest transportation in the world, in these directions. The Ohio is seldom so low that navigation is suspended, and the Kanawha, because of the splendid system of locks and dams erected by the National Government, has slack-water all the year. Along the eastern shore of the Ohio runs the Ohio River Division of the Baltimore & Ohio Railroad; while crossing the Ohio and extending along its northern bank, passes the Kanawha & Michigan Railroad connecting the two capital cities of Ohio and West Virginia—Columbus and Charleston. At the Point Pleasant stations of these roads, twelve passenger trains arrive and depart daily; and freight trains are passing every hour. The town is distant from Huntington, 43 miles; from Charleston, 56 miles; from Wheeling, 172 miles; from Cincinnati, 204 miles; from Pittsburg, by water, 277 miles. Both rivers are spanned at Point Pleasant by handsome railroad bridges, and the town is sometimes called the "Bridge City". North, south and east are to be seen broad reaches of river, upon which float a vast inland commerce, and at the confluence—mouth of the Kanawha—is the safest ice harbor for steamboats and all river craft, between Pittsburg and Cincinnati. Herein is the plant of the Enterprise Marine Dock Company, said to be the best equipped docks on the Ohio. Boats of all sizes are built and "docked." The Point Pleasant Machine shops and foundries is another enterprise widely known. The Equity Flouring Mills, among the best equipped in this valley, sell their products over a wide territory. The Malleable Iron Works, is a new and extensive plant, just ready to begin operation. The town has a conservative government economically administered with an efficient police department; excellent hotels, among them the Spencer House, now approaching completion at a cost of, in all its appointments, a hundred thousand dollars; churches, among them the Methodist Episcopal, the Methodist Episcopal, South; Episcopal, Presbyterian, Colored Baptist, and African M. E. Among the fraternal organizations are the Free Masons, Odd-Fellows, and Knights of Pythias. The county

buildings are located here; the town has paved streets, water works, and electric lights; the many mercantile houses represent every line of goods.

As the town grew, the people began to realize that there was little room for expansion. Hemmed in on the west by the Ohio River, on the south by the Great Kanawha river, on the east and north by ancestral homes, surrounded by broad acres of the ancient estates, it seemed that the town had reached its limits. But the spirit of public enterprise which had been aroused, found a way in a united effort to expand the town, and only a few months ago this resulted in the purchase of more than a square mile of the finest river bottom just above the town, by the Point Pleasant Development Company, and the purchase is now known as North Point Pleasant. The entire tract has been surveyed, platted and laid out in broad avenues, with streets and building and business lots. This property fronts on the Ohio river for nearly a mile, with deep water in front of it. The Ohio River Division of the Baltimore & Ohio Railroad, runs through the purchase, on a tangent. The lots will be sold at a minimum price commensurate with such splendid values. The terms of sale will be fixed at ¼ cash on day of sale, ¾ in three annual payments secured by deed of trust. It will thus enable the poor man to secure a lot and ultimately a home. It will insure the good liver, breathing space and plenty of elbow room at moderate cost. The person looking for spacious grounds on a broad magnificent avenue, where building restrictions will limit the location and guarantee the erection of nothing but beautiful homes, can, too, be accommodated. Here is the opportunity to suit all purchasers. Already numbers of houses are being designed and will be contracted for erection in the early spring. No one investing in lots in North Point Pleasant will ever have cause to regret their purchase.

The stock holders have generously proposed to devote sufficient profits from the sale of lots for the erection of a Structural Iron Works.

They will also give free sites and take stock in any further industries guaranteeing employment to labor. No better sites for manufacturing purposes can be found on the banks of the Ohio. These locations, which are not only absolutely free to responsible manufacturers, but the purchasers offer to subscribe for stock, have on one hand the two rivers, on the other the two lines of railroad; cheap fuel and raw material can be easily assembled, with the cheapest transportation in the world to every point of the compass.

The banks of the town—all solid financial institutions—are kindly disposed toward industrial enterprises and are always accommodating to their customers. No legitimate enterprise, has ever suffered for want.

banking accommodations at Point Pleasant. A hearty welcome will be extended to all who come. The capitalist, artisan, home-seeker—all will find that which they seek at Point Pleasant.

CABELL COUNTY—HUNTINGTON CITY.

Cabell county, formed from part of Kanawha in 1809, has an area of 300 square miles and a population of 32,000. For full thirty-five miles, the county is bordered on the northeast by the Ohio river; while the Guyandotte flows through it dividing it into two equal parts and empties into the Ohio at the town of Guyandotte three miles above the City of Huntington. It is a splendid farming county, the broad Ohio bottoms being unsurpassed for agricultural purposes. Off the river, the surface is hilly and undulating.

There are 1,923 farms in the county; of this number 15 have less than 3 acres; 125 have 3 and less than 10 acres; 186 have 10 and less than 20 acres; 507 have 20 and less than 50 acres; 578 have 50 and less than 100 acres; 322 have 100 and less than 175 acres; 107 have 175 and less than 260 acres; 49 have 260 and less than 500 acres; 13 have 500 and less than 1,000 acres; and 1 has 1,000 acres.

Splendid crops are grown on both the highlands and the bottoms. In the county in 1902, there were harvested of wheat, 8,732 acres, producing 62,392 bushels, valued at $49.913; of oats, 1,321 acres, producing 16,247 bushels; of corn, 14,781 acres produced 364,616 bushels, valued at $218,769.60; of buckwheat, 3 acres produced 75 bushels, valued at $37.50; of Irish potatoes, 459 acres produced 27,662 bushels, valued at $37.50; of of meadow, 1,869 acres produced 1,982 tons of hay, valued at $19,820.00; of sorghum cane, 256 acres produced 39 tons of forage, and 17,690 gallons of syrup were made. The total valuation of all agricultural products for the year was $302,371.70.

All varieties of fruits grow to full maturity. In 1902, of apples, 65,039 trees, yielded 24,125 bushels, worth $14,475.00; of pears, 1,554 trees yielded 405 bushels, worth 324.00; of peaches, 23,789 trees yielded 12,063 bushels, worth $9,650.00; of cherries, 2,226 trees yielded 392 bushels, worth $1,076.00; of plums, 1,873 trees yielded 323 bushels, worth $646.00; of small fruits, 58 acres yielded a production valued at $3,899.00; total value of all fruit for the year was $26,171.40.

The hills are neither high nor steep and they produce good grass, thus making excellent grazing lands, and the development of the live stock in-

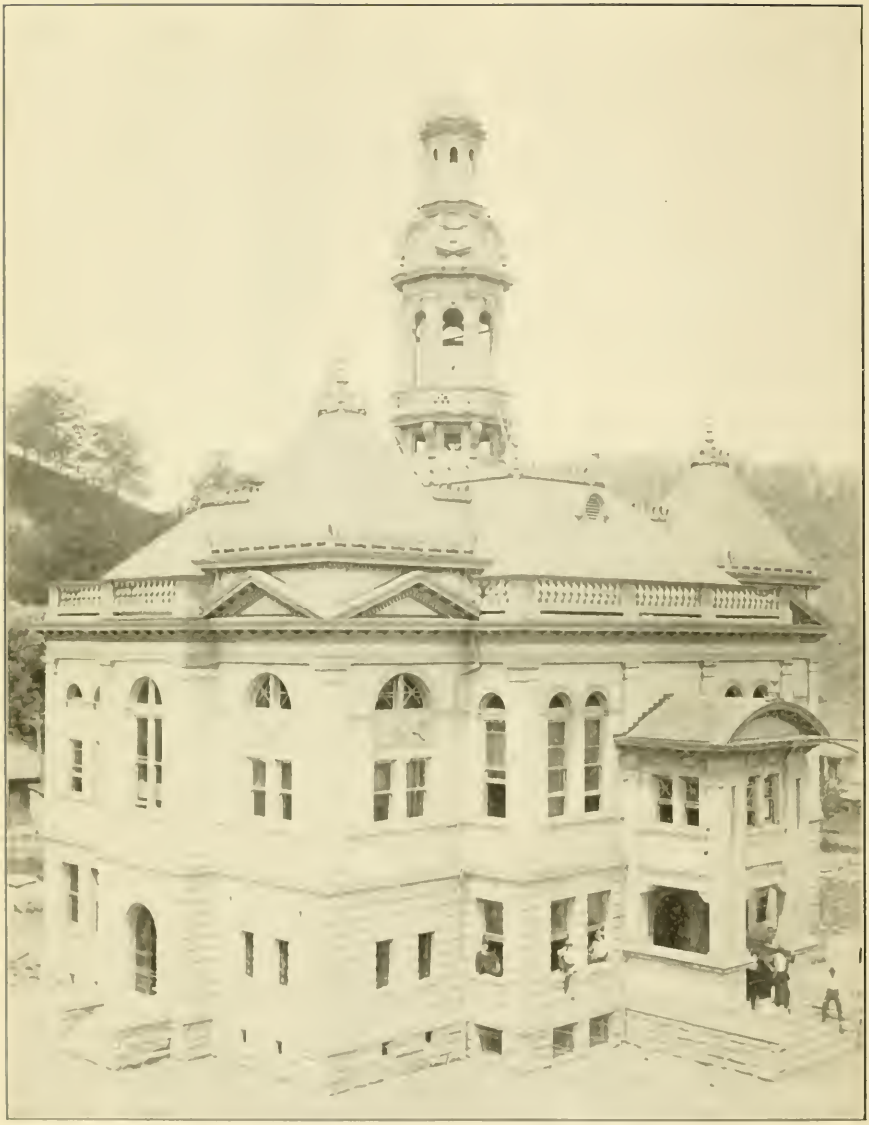
dustry. In 1902, there were in the county of horses and mules, 3,583 valued at $143,320.00; of cattle, 7,142, valued at $142,840.00; of sheep, 3,220, valued at $6,440.00; of swine, 3,111, valued at $9,333.00; the total value of all live stock for the year was $320,070.00. Of poultry, there were 64,025 chickens, 518 turkeys, 1,982 geese, and 995 ducks, the whole valued at $18,149. The value of poultry raised the preceding year was $31,231.00, and 419,340 dozens of eggs were produced.

Cabell county has the best of shipping facilities. Within it, on the Ohio River Division of the Baltimore & Ohio Railroad are 17.7 miles of main line and 2.71 miles of sidings, valued at $126,355.07; on the Chesapeake & Ohio Railway, there are 26.13 miles of main line, 5.79 miles of second main line, and 26.43 miles of sidings, valued at $566,896.58; on the Guyandotte Valley Branch of the C. & O. Railway, are 15.19 miles of main line, and .71 miles of sidings, valued at $47,022.00. Thus the county has a total trackage of 94.66 miles, valued at $740,273.65. In addition to this, there are on the Camden Inter-State Railway Electric Line, 8.8 miles of trackage, valued at $73,960.00.

Cabell county has an efficient educational system. Last year there were 110 schools; 9,992 school youth enumerated 7,719 pupils enrolled. Morris Harvey College is located at Barboursville. (See p. 126.)

HUNTINGTON CITY.

The growth of the city of Huntington has been phenomenal. A little more than a quarter of a century ago the site on which it stands was covered with grain fields. Now it has grown to be a city of more than 25,000 people including the suburbs of Guyandotte and Central City. It has broad and well paved streets—the best in the State—sewerage, electric light and power, gas, water works, a good fire department, and excellent street car service, with large commercial and manufacturing interests, the latter being the principal one. By the census of 1900 there were 89 manufacturing establishments of various kinds within the city. These had an invested capital of $2,286,230.00; 1,861 wage earners, receiving $871,708.00; miscellaneous expenses, $117,075.00; cost of material, $2,598,937.00; and a finished product, worth $3,873,432.00. Among the enterprises established since that date are the Camden Interstate Railway Company, with a capital of $1,000,000.00; the J. C. Carter Mercantile Company, capital, $10,000; the Consumers' Ice and Cold Storage Company, capital, $24,000; Enslow & Blair, Insurance, capital, $15,000.00; Gwinn Bros. & Company, capital, $20,000.00; the Guyandotte Valley Telephone Company, capital, $3,000.00; John A. Jones (Mercantile), capital, $25,000.00; the Koontz Hardware Company, capital, $8,000.00; the Newcomb Bros. &



MINGO COUNTY COURT HOUSE—Williamson.

Company, capital, $4,500.00; the Huntington Merchandise Company, capital, $10,000.00; the Huntington Plumbing & Supply Company, capital, $5,000.00; the Huntington Stove and Foundry Company, capital, $13,300.00; the Huntington Tumbler Company, capital, $50,000.00. Such are some of the enterprises located in Huntington, now known as the "Industrial Center of the Southern Ohio Valley."

Every railroad that reaches Huntington is a coal carrier; so is the Ohio river; while the Guyandotte Valley Railroad, nearing completion, runs from Huntington to the heart of the famous Pocahontas Coal Fields. Huntington's supply of natural gas from the present source of supply is the most reliable in the country, while another gas field is being developed just east of the City in the Milton Oil Field—the biggest oil strike for years, in West Virginia.

In addition to the Ohio River, three trunk lines of railroad insure the lowest freight rates. The Chesapeake & Ohio (terminal of three divisions) Baltimore & Ohio, and Norfolk & Western. Suburban cities of West Virginia, Kentucky and Ohio are reached by the Camden Inter-State Railroad, the finest traction line in the State.

The Huntington Land Company, incorporated with a paid in capital of $500,000.00 is composed of a number of well known business men of this section, whose mutual purpose is the development, improvement and growth of the city of Huntington and vicinity. It owns a large portion of most desirable property within the corporate limits of the City. By the liberal policy of this company, a golden opportunity is offered to investors, manufacturers and homeseekers alike. With the welfare of Huntington's industrial interests at heart, this corporation reserves a portion of its land most suitable, by reason of convenience of location and shipping facilities, for manufacturing sites. They also set aside a tract of land for a public park which the rapid growth of the city will soon make a necessity for the pleasure and health of the community.

The Huntington Land Company invites correspondence. Ample free sites with switches for rail and river shipment, are reserved for meritorious industries. In the language of all the people, "Huntington is a good town."

Marshall College, the State Normal School, is within the corporate limits of the City. (See page 114.)

MINGO COUNTY.

Mingo county, formed in 1895, from part of Logan, was the last created in the State. It has an area of 406¾ square miles, and in 1900

had a population of 11,252, which because of recent developments is now doubtless more than 15,000. Tug river forms its southern boundary, separating it from Kentucky, for more than 70 miles, and Pigeon creek is its principal tributary within the county. The surface is broken and hilly some of the elevations attaining the dignity of mountains. The valleys are narrow with, as a rule, but little bottom land. But there is much rolling and sloping land. The soil is loam, more or less sandy or clayey, very productive and yielding grain and grass well. It may be said that the hills and mountains are fertile to their very summits. The valleys are well tilled, and the hills, where not too steep, yield good crops.

By the census of 1900, it was shown that there were 957 farms in the county; of this number, 3 had less than 3 acres; 111 had 3 and less than 10 acres; 140 had 10 and less than 20 acres; 154 had 20 and less than 50 acres; 174 had 50 and less than 100 acres; 183 had 100 and less than 175 acres; 70 had 175 and less than 260 acres; 80 had 260 and less than 500 acres; 26 had 500 and less than 1,000 acres; and 15 had 1,000 or more acres.

Farming now engages much attention: In 1902, of wheat, 22 acres produced 155 bushels, worth $124.00; of oats, 357 acres produced 2,593 bushels, worth $1,037.20; of corn, 5,482 acres produced 95,051 bushels, worth $57,030.60; of Irish potatoes, 198 acres produced 9,287 bushels, worth $1,663.50; of meadow, 450 acres produced 627 tons, worth $6,270.00; of sorghum cane, 53 acres produced 15 tons of forage and 3,505 gallons of syrup were made. The total value of all agricultural products was $69,105.30.

Fruit culture is in its infancy but enough has been done to prove that the soils are well adapted to the growth and development of all the standard varieties. As the forest disappears fruitful orchards will take its place. Of apples, in 1902, 4,726 trees yielded 19,427 bushels, worth $11,656.20; of pears, 137 trees yielded 384 bushels, worth $307.20; of peaches 514 trees yielded 477 bushels, worth $381.60; of cherries, 65 trees yielded 83 bushels, worth $166.00; of plums, 252 trees yielded 109 bushels, worth $218.00; of small fruits, 4 acres yielded a production valued at $200.00. The total value of all fruits for the year was $12,724.00.

Grass grows luxuriantly as the forests are cleared away and this is developing an interest in the live stock business. In 1902, there were in the county, of horses, 2,485, valued at $99,400.00; of cattle, 3,185, worth $63,700.00; of sheep, 1,649 worth $3,298.00; of swine, 3,586, worth $10,758.00, the total value of all live stock for the year was $177,156.00.

Of poultry, there were 15,461 chickens, 169 turkeys, 3,642 geese, and

5,425 ducks; the whole valued at $7,229.00. The value of all poultry raised the preceding year was $13,366.00, and 95,100 dozens of eggs were produced. There were 2,815 swarms of bees valued at $7,832.00, producing 50,110 pounds of honey and 730 pounds of wax. There are 1,582 milch cows on farms. 663,065 gallons of milk were produced and 139,709 pounds of butter made, 7,005 pounds of which were sent to market.

By the census of 1900, there were 27 manufacturing establishments of various kinds, including shops, having 31 stock-holders and an invested capital of $268,975.00; 10 officials and clerks whose salaries are $5,410.00; an average number of 117 wage earners, whose wages amounted to $42,962.00; miscellaneous expenses, $3,925.00; cost of material, $150,828.00 and the finished product valued at $278,579.00. To these numerous other plants have since been added.

But it is in its mineral resources that the county has its greatest elements of wealth. Iron ore is found; but the value and extent of the deposits are, as yet, unknown. Lead is reported in small quantities, but its commercial value has not been determined. Natural gas exists together with excellent indications of oil. The best varieties of building stones in greatest abundance are distributed over the county. Clays of various kinds exist and that—a vast deposit—now being developed at Williamson, the seat of justice, is unquestionably among the best in the State. Costly machinery has just been installed to work it and brick and other products are being put on the markets.

But the chief element of wealth is coal. Every known variety, except anthracite, being distributed over the whole county. It is buried beneath the surface and lies in the hills and mountains, where for countless ages it awaited the time when human enterprise should penetrate the forest solitudes and reap a rich harvest from the treasures stored here. That time has come. Mining began in the county in 1895, and in 1902, as appears by the last report of the Chief Mine Inspector there were fifteen operations producing 635,113 tons of coal; of which 3,600 tons were used in operating the mines; 5,518 tons furnished the local trade and tenants, and 625,995 tons sent to market. So rapid has been the development in the last two years that these figures may be doubled, for there are now 30 mining operations in the county.

There are good shipping facilities. There are on the Norfolk & Western Railroad within the county, 77.6 miles of main line, 7.89 miles of branch line, and 23.78 miles of sidings; a total trackage of 109.27 miles, valued at $996,450. The building of the line down the Tug river will add about ten miles more to the trackage in the county.

The educational system is good. There are 84 schools, 4,227 school youth enumerated, 3,151 pupils enrolled, and the total expenditure last year, for school purposes, was $30,066.00.

Williamson, the seat of justice, with its busy population of 3,500, is the metropolis of the Big Sandy Valley.

McDOWELL COUNTY.

McDowell county, formed in 1858, from part of Tazewell, has an area of 840 square miles, and, 1900, had a population of 18,747, which, because of recent development is probably 22,000. It ranks fourth in size and is the most southern county in the State, bordering, as it does, on Virginia for nearly a hundred miles. The county is bounded by mountain ridges; Tug river flows westward through the northern part and its tributaries drain the county. The surface is broken and in some parts mountainous; the soil is a loam, or rather a sandy loam, very deep and naturally fertile. A large portion of the county is still covered with primeval forests. But as it is removed, cultivation of the land follows and there is an excellent market—the best in the State—for all kinds of agricultural products.

Much of its surface is held by land companies and foreign owners, but by the census of 1900, there were 780 farms in the county; of these, 56 had 3 and less than 10 acres; 89 had 10 and less than 20 acres; 173 had 20 and less than 50 acres; 162 had 50 and less than 100 acres; 143 had 100 and less than 175 acres; 56 had 175 and less than 260 acres; 65 had 260 and less than 500 acres; 28 had 500 and less than 1,000 acres; and 17 had 1,000 or more acres.

That part of the county under cultivation yields good crops. For the year 1902, there were 11 acres sown in wheat, which produced 34 bushels worth $27.20; 1,129 acres in oats, which produced 9,905 bushels, worth $3,962.00; 3,879 acres in corn produced 58,694 bushels, worth $35,216.40; 6 acres in buckwheat produced 47 bushels, worth $23.50; 313 acres in Irish potatoes, produced 11,402 bushels, worth $5,701.00; of meadow, 476 acres produced 283 tons, worth $2,830.00; of sorghum cane, 38 acres were planted producing 160 tons of forage, and 11,129 gallons of syrup were made. The total value of all agricultural products was $57,760.00.

Fruit culture is being rapidly introduced and with most satisfactory results. In 1902, of apples, 18,269 trees yielded 18,370 bushels, worth $10,962.00; of pears, 705 trees yielded 352 bushels, worth $281.60; of peaches, 2,373 trees yielded 2,850 bushels, worth $2,280.60; of cherries,

465 trees yielded 165 bushels, worth $330.00; of plums, 145 trees, yielded 26 bushels, worth $52.00; of small fruits, 2 acres yielded a production valued at $155.00. The total value of all fruits for the year was $13,965.00.

Grass grows well on the hills as the timber is cleared away and this will be followed by grazing, which is sure to become the principal form of agriculture in the county. In 1902, there were in the county, of horses and mules, 1,893, valued at $75,720.00; of cattle, 3,857, valued at $77,140.00; of sheep, 3,035, valued at $6,070.00; of Angora goats, 3, worth $15.00; of swine, 3,229, worth $9,687.00. The total value of all live stock was $171,232.00.

Of poultry, there were, in 1900, 9,256 chickens, 398 turkeys, 1,551 geese, and 317 ducks, the whole valued at $4,126.00. The value of all poultry raised the preceding year was $8,818.00, and 47,690 dozens of eggs were produced. There were 1,343 swarms of bees, valued at $4,$47.00, and producing 21,888 pounds of honey and 160 pounds of wax.

There were 1,483 milch cows on farms and 282 dairy cows not on farms, neither of which are enumerated in the live stock above; 374,500 gallons of milk were produced, and 59,810 pounds of butter were made, of which 7,820 pounds were sent to market. The total value of of all dairy products was $35,771.00.

By the census of 1900 it was shown that there were in the county, 55 manufacturing establishments of various kinds, including shops, with an invested capital of $2,069,860.00; 35 proprietors; 100 salaried officials and clerks; an average number of 1,613 wage-earners receiving $405,626.00; miscellaneous expenses, $128,814.00; cost of material, $747,884.00; and a finished product worth $1,444,393.00. To these since then have been added the Keystone Foundry Company, with a capital of $8,000.00; the Flat Top Ice and Cold Storage Company, capital, $20,000.00; the Cambridge Coal & Coke Company, capital, $25,000.00; Harman Branch Lumber Company, capital, $30,000.00; and numerous other establishments.

But the great wealth of the county is in its natural resources. Iron ore exists but the commercial value of the deposits is unknown. Valuable clays are known to exist in quantities sufficient to warrant development. Building stones, of many varieties and excellent qualities sufficient to supply the whole country for ages to come, are distributed over the county.

McDowell county lies in the midst of the Flat Top Coal Field—one of the finest coal regions of the United States or, indeed, of the world. The county, a wilderness but a few years ago, with but scattered population and its forests full of wild animals, is now known throughout America

and is speedily becoming one of the foremost in business and industrial enterprise. The whole county is underlaid with coal seams and its strata fill the mountains. Low in volatile matter and ash and high in fixed carbon, it is superior for grate and steam coal, and the best grade of the finest coking coal in the whole Appalachian Field. It has been said that every land owner in the county, if he desire, can have his own coal bank, and, indeed, many of them do have. By the last report of the Chief Mine Inspector of the State, it is shown, that the county ranks second in the production of coal and first in that of coke. In 1902, the number of mines in operation was 43 and the production was 4,734,199 tons, of which 31,489 tons were used in operating the mines; 25,980 tons furnished local trade and tenants; 1,334,808 tons used in coke ovens; and 3,341,922 tons sent to market. At the same time, 3,236 ovens produced 929,433 tons of coke. During the year, 603.36 acres of coal were excavated, or worked out. There are 537,600 acres in the area of the county and if this be all underlaid with coal, it is easy to see, that at the present rate of mining, it will require centuries to exhaust the supply in this county alone.

The Norfolk & Western Railroad was the first to penetrate these mountain fastnesses and carry to the outer world the riches of this region. The county thus has excellent shipping facilities. Within it on the Norfolk & Western Railroad are 54.36 miles of main track, 19.35 miles of branch track, 13.46 miles of second main track, and 59.39 miles of sidings, the whole valued at $1,110,561.50. On the Panther Creek Railroad are 10 miles of main line, and 1 mile of sidings, valued at $15,410.00. Thus the county has 157.56 miles of trackage valued at $1,125,971.50.

Welch, the seat of justice, on the left bank of Tug River and on the Norfolk & Western Railroad, is a busy, prosperous town, distant 181 miles from Huntington, 329 miles from Cincinnati and 400 miles from Norfolk.

The county does much for education. There are within it 111 public schools; 5,668 school youth enumerated, and 4,495 pupils enrolled. Last year the school expenditure of the county amounted to $34,982.74.